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THE

Montreal Medical Journal

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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GEORGE E. ARMSTRONG, H. A. LAFLEUR,
A. D. BLACKADER, JOHN McCRAE,
G. GORDON CAMPBELL, F. J. SHEPHERD,
F. G. FINLEY, J. W. STIRLING,

ANDREW MACPHAIL, MANAGING EDITOR.

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PERICARDITIS: A CLINICAL ANALYSIS OF THIRTY-SIX CASES.

BY

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It is not the intention to discuss lengthily the various symptoms or physical signs of pericarditis, but rather to classify some of the cases which have been in the wards of the Royal Victoria Hospital and to emphasize certain interesting clinical features which have come under notice.

Before entering into this analysis, however, a brief note upon the relations which pericarditis bears to tuberculosis, and to pneumonia, may be recorded. Out of seventy-one cases of pericarditis found in 602 autopsies in the Royal Victoria Hospital, only eight were classed as tuberculous. Five of these were associated with miliary tuberculosis, one with a tuberculous broncho-pneumonia, one with chronic pulmonary tuberculosis in the stage of cavitation, and one with caries of one of the bones. (There were no cases with tuberculous peritonitis). While unable to indicate the number of cases of pulmonary tuberculosis found among these 602 autopsies, a comparison of the number of tuberculosis pericarditis cases with the total number examined, shows that as a cause tuberculosis is comparatively rare.

These records have also been asked to bear witness in the incidence of pericarditis with acute pneumonia of the lobar or lobular type, and the following numerical relationship has been established. Of 71 cases ten are found associated with pneumonia. Of these five were lobar, and five were lobular. In 282 cases of lobar pneumonia only six of these, or 2.1 per cent, showed clinical signs of pericarditis.

Read before the Montreal Medico Chirurgical Society. December, 1905.

The classification adopted in studying these cases serves to indicate the primary disease to which the pericarditis is related, rather than the bacteriology of the inflammation itself.

According to this principle the cases fall readily under the following five divisions:—

1. Pericarditis as a terminal complication of nephritis .... 10 cases
2. Pericarditis with acute pneumonia or pleurisy ..... 3 "
3. Pericarditis secondary to acute rheumatism, endocarditis, chorea, or tonsillitis ..... 20 "
4. Pericarditis with pulmonary tuberculosis ..... 1 "
5. Pericarditis with other acute general infections (puerperal septicæmia, 1) (cerebro-spinal meningitis, 1) ..... 2 "

Table showing Age and Employment of Patients in various Groups.

GROUP I.—PERICARDITIS AS LATE EVENT IN NEPHRITIS.

F.—10—School girl.
M.—12—School boy.
M.—30—Painter.
M.—39—Painter.
F.—42—Shoe factory hand.
F.—47—Housework.
F.—48—Housework.
M.—50—Insurance agent.
M.—52—Book binder.
M.—54—Lumberman.

GROUP 2.—PERCARDITIS WITH PLEURISY OR PNEUMONIA.

F.—15—Servant.
F.—24—Servant.
M.—60—Machinist.

GROUP 3.—PERCARDITIS WITH RHEUMATIC FEVER, ENDOCARDITIS, CHOREA, OR TONSILLITIS.

F.— 9—School girl.
F.— 9—School girl.
M.—11—School boy.
M.—11—School boy.
F.—14—Factory hand.
M.—14—Messenger.
F.—15—Laundry hand.
M.—17—Labourer.
F.—17—House servant.
M.—17—Clerk.
M.—17—Confectioner.
M.—18—Farm Labourer.
M.—18—City labourer.
M.—19—Conductor street cars.
M.—21—Tramp.
M.—23—Machinist.
F.—26—Housework.
M.—28—Tobacco factory hand.
M.—29—Plumber.

GROUP 4.—TUBERCULOUS PERITONITIS.

M.—25—Tanner.

GROUP 5.—WITH OTHER ACUTE INFECTIONS.

F.—36—Housework.

(a) *Puerperal Septicaemia.*
(b) *Cerebro-spinal meningitis.*

There were 13 females and 23 males.

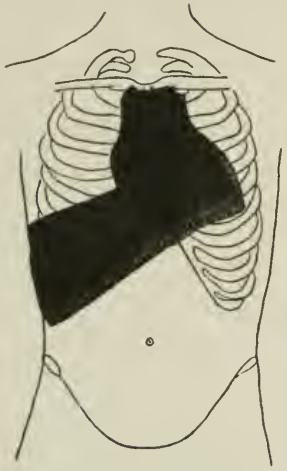
Of these twenty cases in group 3, fifteen gave a clear history of acute articular rheumatism. In nine cases the pericarditis and arthritis were concurrent. In only one of these (6896) is there evidence found of the pericardial inflammation showing itself before the signs in the joints. In all the cases having so-called concurrent arthritis there is found a clear history of previous attacks of rheumatism. There were nine patients giving a history of tonsillitis. Three of these gave no account whatever of joint pains. In one of these patients erythema no-

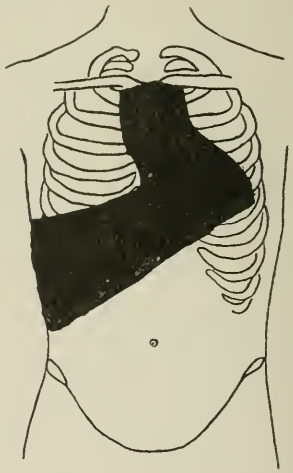
ANALYSIS OF RHEUMATIC GROUP OR GROUP 3.

Case No.	Age	Rheumatism	Endocarditis	Sore Throat	Chorea	Erythema Nodosum	Other Infections	Result
6800	9	At 6 years.	Mitral.	10 days ago.	—	—	—	Death.
6932	9	—	Mitral.	—	At 6 years.	—	Measles in infancy.	Improved.
4758	11	At 8, 9, & 10 years.	Mitral.	—	—	—	Measles.	Death.
8136	11	At 8 years.	Mitral.	Yes.	—	—	—	Cured.
8388	14	—	Acute mitral.	4 days before.	No.	Intercurrent.	—	Cured
8395	14	—	Mitral.	Repeated attacks	—	—	Mumps 3 years before.	Died.
7973	15	At 2 and at 5 years.	Mitral.	—	—	—	—	Died.
9032	15	—	Mitral.	2 or 3 times.	—	—	Typhoid fever, Septicæmia 1 year ago.	Improved.
8956	17	At 15 & concurrently.	Mitral.	—	—	—	Measles at 8 years, Scarlatina at 15.	Improved.
8872	17	At 13, 14, 16 & concurrently.	Aortic & mitral.	—	—	—	Measles, Scarlatina, Varicella.	Died.
8485	17	At 14 & concurrently.	Mitral.	2 months before.	—	—	Diphtheria, Scarlet Fever, Measles, Pneumonia (?)	Improved.
2347	17	At 16 & concurrently.	Mitral.	Yes.	—	—	Pneumonia.	Improved
6896	18	At 12 & concurrently.	Mitral & aortic.	—	—	—	—	Improved.
5529	18	At 17 years.	Mitral.	—	—	—	Pneumonia, pleurisy (Concurrent).	Improved.
5882	19	At 11 & concurrently.	Mitral & aortic.	At age 7.	—	—	Scarlatina at 11 years.	Good.
5484	21	At 11 & concurrently.	Mitral & aortic.	—	—	—	Left pleurisy (concurrent).	Good.
7334	23	At 21 & concurrently.	Mitral & aortic.	—	—	—	Measles, Varicella, Whooping Cough.	Good.
6988	26	At 7, 14 & concurrently	Mitral & aortic.	—	—	—	Whooping cough, German measles, measles.	Died.
9375	28	At 21 years.	Mitral & aortic.	Tonsillitis.	—	—	Measles, Typhoid fever, gonorrhœa.	Improved.
6098	29	Not definitely.	Mitral & aortic.	—	—	—	—	Good.

dosum of characteristic type followed the throat and endocardial signs. The patient having chorea gave no history of arthritis, yet at the age of nine showed well marked mitral endocarditis.

Examining these rheumatic cases still further one finds that all have signs of mitral disease. In twelve cases the mitral valve alone is involved, while in the remaining eight both the mitral and aortic valves show evidence of disease. These statements are made upon clinical observations alone, and one recognizes that error may creep in, particularly as the signs at the mitral valve in the presence of aortic disease, and an acute pericarditis, may well exist without any endocarditis of this valve. It may in justice be said, however, that where a chance to verify this diagnosis unfortunately occurred, disease of the valves was





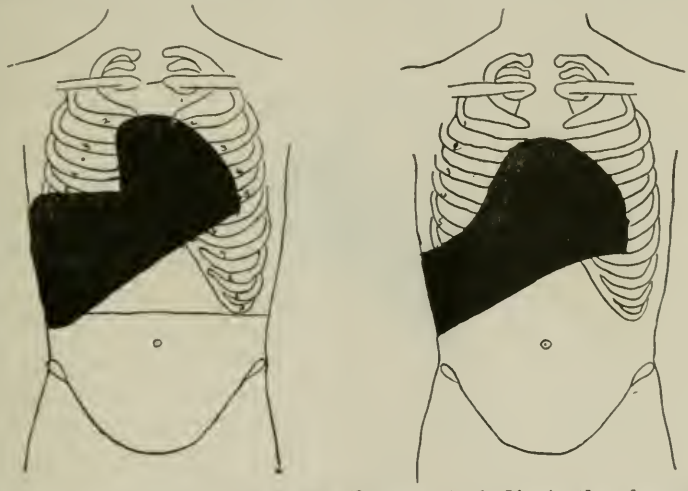
present, with but one exception. In this case a relative insufficiency was present at the mitral orifice.

The story of the early and recurrent attacks of rheumatism suffered by those in Group 3, when considered in relation to their occupation, speaks both of susceptibility of those in early life to severe cardiac complications, and of the influence of labour, privation and exposure in determining these complications.

Among the symptoms of pericarditis, two may claim our attention—pain, and dysphagia. There is no mention of pain in the records of 13 of our cases, particularly in those cases where pericarditis was a late event. In the remaining cases its severity and situation are alike variable. For the most part, however, the pain was severe, in some instances causing the patient to cry out, and in many instances requiring morphia for its relief. In 16 patients the pain was felt in greatest

intensity over the left præcordium, and beneath the sternum; in two cases the left shoulder, and in three cases the epigastrium were areas to which the pain was referred. "A paroxysmal character with extension through to the back" describes it in two other instances.

Dysphagia was marked in four of our cases, and in one of these considerable difficulty was experienced even with liquids. Another patient (5882) stated that swallowing induced pain opposite the 2nd and 3rd ribs. Some clinicians with wide experience have never found this sign; others again remark upon its presence among the signs of a large effusion. In these four patients it was an early sign, unattended with tonsillitis,—observed even before definite signs of fluid were detected.



The accompanying illustrations will serve to indicate the shape of the dulness in a few of our cases when effusion was present. Some years ago Shattuck remarked that he did not find "the dulness of the large effusion either pear-shaped, or pyramidal." In these illustrations one sees that the shapes are various. While each of the above-mentioned types is found, yet the semi-circular type or the "hut-type" is quite as frequently mapped out. Upon this point more may be said when speaking of the diagnosis.

In consideration of the fact that much has been made of the physical signs over the lower portion of the left pleura posteriorly, as indicating pericardial effusion, a few reports of autopsy findngs at the left base, although they may not explain the signs in a given case, may yet afford suggestions of pathological conditions possible under similar circumstances. Take the following cases from among our groups:

9400—Compression of the left lower lobe, bilateral pleurisy.

8872—Left hydrothorax with pleural adhesions on the right.

3675—The left lower lobe was remarkably firm and oedematous.

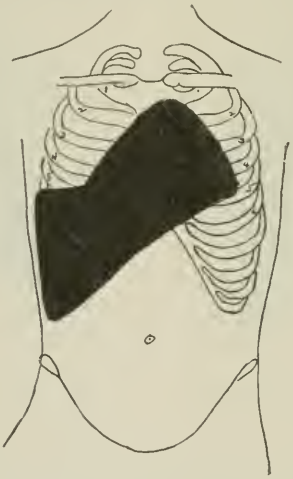
6656—Collapse and chronic pulmonary oedema, old infarct on the left lung.

7973—Bilateral hydrothorax.

9536—Oedema of the lungs.

7883—Bilateral pleurisy.

In 50 percent of our cases clinically examined abnormal signs were discovered over this region, while less than 30 per cent showed indifferent or slight signs at the right base. In four cases pleurisy with effusion at the left base was diagnosed, while in three other cases in the same region pneumonia was manifestly present. Over the right lower lung area signs of pneumonia were found twice, while signs of an effu-



sion into that pleura were found three times. In about ten cases (over 25 percent), slightly impaired resonance, blowing breathing and bronchophony, have been heard at the angle of the scapula. We have been able in but a few—not more than three—instances, to make out the quadrangular area of dulness below the 9th rib, described by Ewart, and explained by him as due to a downward displacement of the liver with altered dorsal relations.

A study of the posterior signs at the left base was carried on with a view of determining the relation they bore to pericardial effusion, that is to say, whether one found posterior signs over the left pleura only after a large effusion had taken place in the pericardium. From the clinical as well as from the anatomical standpoint we must return the answer that such signs as we have described have been found even without effusion, but in the presence of a dilated and hypertrophied heart.

To detect or discover Ewart's quadrangle of dulness, delimited, as he describes it, at the left base has been found difficult, while to accept his explanation of the sign is yet more difficult. It would appear from what has already been said that inflammatory pleural or pulmonary changes may account for this sign. In addition to this I would suggest as another cause those circulatory changes which may occur in the left pleura from pressure exerted upon the vena azygos minor as it crosses the spinal column behind the pericardium to join with the azygos major, into which it empties the blood normally drained from that part of the left pleura below the 6th rib.

Diagnosis:—"Probably, no disease is so frequently overlooked by the practitioner." This remark of Dr. Osler's may be a justification for this paper. At the same time it emboldens me in the confession that in six of our cases the condition was undiagnosed, until the pathologist dealt with the subject. In the majority of these cases, however, the pericardium was involved as a late event, and the amount of fluid found was never very great. For instance, in Case No. 9400, death was due to an acute lobar pneumonia. There was a diplococcus pericarditis in which but a small amount of fluid was found. In No. 9283, a case of post-puerperal streptococcus infection, there was but little effusion. The same may be said of the effusion in No. 6968 with acute parenchymatous nephritis. In Nos. 6656 and 6763, adhesive pericarditis was found.

To leave to the pathologist the discovery of a pericardial effusion is in most instances, little more than an oversight, while the failure to detect a fibrinous pericarditis of but a few hours standing can scarcely be put down to negligence. But to fail to distinguish between cardiac dilatation and pericardial effusion speaks of the difficulty of the task, and in some instances of the lack of clinical experience on the part of the practitioner.

Those who may fail in differential diagnosis of such a case, after giving due attention to the symptoms and signs present, may still hope to have a place among that "number of excellent observers" mentioned by Osler, who, believing that a pericardial effusion was present were convinced to the contrary only after "paracentesis cordis, instead of paracentesis pericardii" was performed.

Such an experience has been ours. The case (No. 4758) was that of a boy of 11 years of age, who was the subject of rheumatic endocarditis, and had been under observation for upwards of four years. When last admitted to the hospital he complained of severe pain in the upper sternal region with shortness of breath. His pulse was 140 per minute, and there was a marked increase in præcordial dulness, both to the right

and left, measuring transversely four inches, while the note in the 2nd left interspace was impaired. The angle of dulness between the liver and heart was obtuse. Posteriorly near the angle of the left scapula bronchophony and blowing breathing were heard. The transverse præcordial dulness increased from four inches to six, and in a few days to seven and a half inches. There was a to-and-fro friction murmur heard over the centre of the sternum at the base of the heart and along the left edge of the sterum. In the light of this evidence, and in the view of the imminence of death from what appeared to be pericardial effusion, it was decided after consultation with Dr. Garrow to perform paracentesis of the pericardium. The fourth right interspace close to the sternum was chosen, and three ounces of fluid not distinguishable from pure blood were withdrawn. The patient seemed in no way made worse by the operation but died after 22 hours. The immediate results of paracentesis showed that in all probability the heart was punctured and that the fluid withdrawn was from one of the cardiac chambers. The autopsy showed that such was the case; the right auricle had been tapped. There was no pericardial effusion, only a dry pericarditis with a heart greatly enlarged and dilated. Before leaving this case let me emphasize the following points upon which so much stress has been laid as helping to distinguish between pericarditis and cardiac dilatation; the pericardial friction rub, the increase of the dulness upwards into the second left interspace, the rapid increase of transverse præcordial dulness, the dulness in the 5th intercostal space, Rotch's sign, the obtuse angle between liver and heart, i.e. the dull cardio-hepatic angle, and the posterior signs at the angle of the left scapula, Ewart's sign—all speaking for pericardial effusion, and yet not an ounce of fluid in the pericardium! This case is one in which the difficulties of differential diagnosis, already referred to, were very great indeed.

A similar case occurred more recently, and a few observations may serve to show that one should not trust implicitly to valued signs. In this case there was præcordial pain. The dulness extended upward into the second left interspace, a friction rub persisted, which, as we all know, may be the case even in the presence of considerable effusion. The cardiac impulse was seen well inside the limit of dulness to the left. The extent of transverse præcordial dulness was marked both to the right and left of the sternum and occupied the greater part of the thorax. The outline on the right approached the liver dulness at an obtuse angle, and Traube's resonant space was obliterated. The friction disappeared, and the cardiac sounds became fainter. Our past experience helped us not a

little in interpreting these signs, and an effusion in the right pleura explained in part at least the dulness in the cardio-hepatic angle. There was no pericardial effusion, but an acute plastic pericarditis and cardiac hypertrophy with dilatation.

The fatality in these thirty-six cases is very high, and is expressed by 55 per cent, or 20 cases. Six patients died in Group No. 3, and three of those belonging to the nephritis group had chronic endocarditis with a history of rheumatism at comparatively early ages.

The Treatment:—The rheumatic cases were treated with the ordinary anti-rheumatic remedies, and all patients in severe pain were given morphia, either hypodermically, or by mouth. Locally, the ice bag, or Leiter's coil to the pericardium, gave relief to pain in certain cases. Paracentesis pericardii was not indicated in any other case than that already described. A left pleural effusion was aspirated in one case.

The main points which it is desired this study may bring out are:—

1. That the young rheumatic subject is very susceptible to pericarditis.

2. That tuberculosis is a comparatively rare cause of pericarditis.

3. That pericarditis with lobar pneumonia is comparatively rare. In a series of 282 cases only six showed signs clinically of pericarditis.

4. That Rotch's dull angle, or the cardio-hepatic angle is doubtless found dull with pericardial effusion, but it is found with marked dilatation of the heart as well, and hence loses its value as a diagnostic point between these two conditions.

5. Dulness on the left second interspace, upon which some have insisted as of diagnostic value in such conditions, may also be found with cardiac dilatation.

6. It appears that there may be other causes to account for the posterior dull quadrangle at the left base than that to which Ewart ascribes it.

In the wards of every large hospital in the course of even a few years there are found many clinical pictures of the same disease, a study of which is in the highest sense instructive and of much practical value. Those of us who have viewed these pictures at closest range have found them so. It is sincerely hoped that the mere glimpses of these clinical pictures, more than which, such an analysis can scarcely afford, may not be wholly devoid of interest.

Before closing this paper, I wish to express my thanks to Dr. Ballantyne who some years ago began the analysis of these cases, and especially to Drs. Scrimger and Tull, and Moffatt who more recently have been indefatigable in searching records, arranging facts and making diagrams.

A STUDY IN THE SO-CALLED INFANTILE PARALYSES.

BY

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The so-called Infantile Paralyses may be divided into two groups, the spastic, and the non-spastic. The most frequent cause of the non-spastic form is the affection described as Anterior Poliomyelitis.

Acute anterior poliomyelitis has been defined by Osler as "an affection occurring most commonly within the first three years of life, characterized by fever, loss of power in certain muscles, and rapid atrophy." By statistics it has been shown that next to rachitis, poliomyelitis is the most prolific source of deformity, and of deformity which never disappears spontaneously.

Observations made at the Children's Memorial Hospital suggest that it is a disease which, although occurring most frequently within the first three years of life, is not extremely uncommon even up to adult life; that frequently there is a history of an acute febrile onset followed by paralysis and paresis in single muscles, or groups of muscles. These paralyses usually attain their maximum intensity at once, or almost at once. Quite as frequently, however, there can be elicited no history of a premonitory febrile attack, but, rather, the history of a slight, perhaps progressive, loss of power in certain muscles, or groups of muscles, which has become noticeable to the friends of a patient who previously was supposed to be in perfect health and condition. In both classes of cases atrophy is soon noticed, and this accompanied quite frequently by deformities of various forms.

Etiology.—The cause of this disease is unknown. It has been attributed to dentition, over-exertion, cold, exposure and even traumatism. The occurrence of this disease after infective fevers may demonstrate either a toxic origin or that the infective fevers predispose to this affection.

Painter (1) of Boston, drawing his conclusions from his study made of the epidemic which occurred in Gloucester in the summer of 1900 states, that we have as good evidence of the infectiousness of anterior poliomyelitis as we have in the case of scarlet fever; that it is probable that there may be several organisms capable of producing this "symptom complex."

The pathological alterations found in the few early cases, where an examination has been possible, show that the latest lesions are dependent upon an acute inflammation causing a secondary destruction of nerve-

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cells. This inflammation was, at one time, considered to be due to a selective action of the poison for the cells of the anterior cornua, but more recently the distribution of the inflammation has been said to depend upon the blood supply. Marie and others have thought the initial process is, embolism or thrombosis, the result of an acute infection.

Head and Campbell (6) deny that the disease is directly secondary to occlusion or interference with a vessel, and have strongly expressed the opinion that the thrombosis is secondary to an acute infection, probably of bacterial origin, but Batten (7) draws our attention, in his article on the Pathology of Infantile Paralysis, to the fact that exactly similar changes as are found in Infantile Paralysis, viz., hæmorrhages and small cell exudation, may be produced by obliteration of small vessels, and concludes:—

(1) That the condition is due to a primary thrombosis of a branch or branches of the anterior spinal artery supplying the grey matter of the anterior horn.

(2)That such thrombosis may be produced by many and various forms of infection, and the disease is not due to a special specific infection.

(3) That the condition is more likely to occur in the lumbar region owing to the blood supply of this portion of the cord being at a point more distal from the heart, and the long course of the reinforcing arteries.

Epidemics have been reported by Colmer in 1843, Bengenholtz in 1881 and by Oxholm about the same time; Media in 1887, by Cordier in 1885 and by Caverley (2), Brackett (3), Painter (4) and many others.

It sometimes attacks two or more children in the same house at, or about, the same time. W. Pasteur (5) reported in 1897 a family of seven children being attacked by this disease at the same time. The isolated cases are, however, by far the most frequent.

The epidemics reported, and those occasions upon which two or more members of the same family have been affected suggest a specific causation for this disease, but it is possible that epidemics and groups of cases may be attributed simply to atmospheric or other extraneous conditions increasing the liability to this affection in one particular locality or dwelling.

Morbid Anatomy.—Examinations have shown that the disease is due to an acute inflammation in the anterior cornua of the spinal cord. This inflammation causes, or is accompanied by, a large amount of small round-cell exudation, hæmorrhages and thrombosis of vessels. It is followed by necrosis, and finally by cicatrization.

Goldscheider, Siemerling and others have demonstrated that the disease is localized in the parts supplied by the ventral median branch of the ventral spinal artery.

Clinically the complete paralysis which occurs so often at first, and the rapid recovery of the majority of muscular groups, point to a pressure on nerve elements and cells rather than to a destructive inflammation.

The lesions are most frequently seen in the lumbar and cervical enlargement. The meninges may be involved in the inflammation.

Although there may be still some doubt as to the earliest pathological lesions found in the cord, as this affection is so rarely fatal, there is no doubt, however, that the persistent paralyses are the result of necrosis of the large motor cells in the anterior cornua, but it is necessary to note that our knowledge of the lesions seen on examination of the spinal cord after the termination of the acute stage of this affection may be insufficient to enable us to properly differentiate between cells atrophied, primarily through this affection, and those atrophied through disuse. It will, perhaps, be necessary to explain this by stating briefly a fact which will be accentuated in this paper, viz., that the paralyses, or often more correctly speaking the pseudo-paralyses following anterior poliomyelitis, can only be partly attributed to destruction of nerve cells; that loss of function in the muscles supplied by these cells is quite frequently due to stretching or to disuse, and conversely an atrophy of nerve cells may possibly be attributable to the loss of function in muscular fibres governed by these cells and condemned to disuse by the stretched condition of the muscle. This latter statement could, however, be verified, only, by comparisons made with similar spinal ganglia in the cords of those who had lost extremities, or in ankyloses, and, perhaps, in cerebral-palsies.

Symptoms.—With or without slight indisposition or feverishness the patient loses the use of one or more groups of muscles. Convulsions at the onset are rare, not usual, as in the acute infantile hemiplegias. Fever although often, or perhaps always, present may not be noticed. Pain and tenderness in the affected limbs are frequent in those cases with an acute onset, where, also, the paralysis soon reaches its maximum; usually in a few hours. The severity of the pain is said to depend upon the amount of involvement of the meninges. The distribution of the paralysis follows no rule. The lower extremities are most frequently affected; indeed in over eighty per cent of these cases one or both lower extremities are involved. The paralysis is, however, not necessarily confined to the limbs, but may affect the body, more especially

the muscles of the back. The muscles of the lower extremity are usually stated to be involved in the following order of frequency,—

(1) The Peronei, (2) The Extensors of the Toes, (3) The Quadriceps, (4) The Tibiales.

The hamstrings and the muscles of the calf are about equally attacked. The muscles which most frequently escape are the sartorius and illio psoas. In the experience of the Children's Memorial Hospital the tibiales are more frequently affected than either the extensors of the toes or the quadriceps.

The muscles most frequently attacked in the arm are, in the order of frequency, the deltoid, the shoulder group, consisting of the deltoid and supra and infra spinatus, the biceps and supinators (these being generally conjointly affected). The flexors of the hand are more rarely affected. The sphincters are rarely involved, and there is no tendency to decubitus. In the early stages the reflexes and electrical excitability are said to be increased, but later both are diminished.

The paralysis is usually at its height in from a few hours to a week or ten days.

This early stage is followed about the end of the first week by a period of degeneration when not only the cells of the anterior cornua degenerate, as is shown by the gradual loss of reflexes, but the excentric nerves and muscles depending on the spinal ganglia whose function is irreparably gone begin to degenerate either through lack of spinal nutrition, disease or stretching. Accompanying these degenerative changes a period of regeneration gradually begins. The paralysis, which usually for a period varying from six weeks to three months has remained stationary, begins to improve, and at first rapidly, until gradually improvement ceases. After six months it is rare to see any improvement in untreated cases, but before this time has passed the functions of many muscles, or muscular fibres, which have weathered the storm returns, and consequently, we have degeneration accompanied by regeneration. The degeneration of the excentric nerves and the muscles, disuse, and stretching from unapposed muscular action together with the central lesion result in atrophy of the parts which become flaccid and the affected muscles soft and flabby. From this condition complete recovery is rare.

Sensation is unaffected after the earliest stage of this disease. The skin reflexes are absent and the deep reflexes in the affected muscles are usually lost. There is no response to either direct or indirect Faradization if the loss of power is complete. Duchenne has shown that faradic excitability completely vanishes by the seventh day or at the latest in the second week.

When the paralysis persists the wasting is often extreme. The growth of the bone is frequently affected and the ligaments of the joints may be so relaxed that subluxations are apt to occur.

When the upper portion of the cord is affected, cerebral symptoms may make their appearance in the adult. (8)

Diagnosis.—Although the diagnosis is often made without difficulty occasionally there are seen patients in whom great difficulty is experienced in making a diagnosis.

The paralyses of anterior poliomyelitis must be distinguished from the cerebral paralyses. This although sometimes difficult, is done by the history, the character of the paralysis, the age, the condition of the muscles, the rapid wasting, the absence of reflexes, the loss or partial loss of farado-muscular excitability. In other words, by the differences between a flaccid, and a spastic, paralysis.

Progressive muscular atrophy, rarely found in childhood, sometimes begins in the legs. This betrays no loss of reflexes while any muscular tissue remains.

Pseudo-hypertrophic paralysis is differentiated by its history and the excess of muscular tissue in the early stage.

Multiple Neuritis, which is extremely rare in children, is distinguished by its symmetry, by affecting the peripheral muscles and especially by the acute sensory disturbance.

The Pseudo-paresis of Rickets is a condition which is quite common amongst the children of foreigners in this country. In this there is little or no atrophy and the child always presents such characteristic symptoms of rickets that little difficulty should be experienced.

Disease of the joints and "limp-chorea" may also be confused with it. The paralysis and deformities resulting from a bifid spine may at first cause confusion. The characteristic deformities accompanying Friedreich's Ataxia are not unlikely to be confounded with the lesions due to poliomyelitis, but the history and accompanying characteristic lesions should always be sufficient to exclude these.

Paralysis from obstetrical operations is noticed immediately after birth while anterior poliomyelitis occurs rarely before the twelfth month.

Prognosis.—The prognosis for perfect recovery is always bad. The physician who sees the patient during the first two weeks, while feeling reasonably sure that improvement will occur, should impress upon the friends that the outlook for complete recovery is bad. The surgeon, however, who sees the patient at a later period, when contractures and deformities have occurred, can give a more cheerful prognosis. Experience has shown that in all cases by education and conservative surgery, improvement, and in many cases marked improvement, can be aimed at.

Treatment.—Treatment can be separated into (1) that for the primary stage, or the period of central degeneration; (2) the secondary stage, or the time when regeneration accompanies degeneration, and, (3) the tertiary stage, or the treatment of the deformities resulting.

Primary Stage:—The treatment of the acute stage usually falls to the physician. It is hardly necessary for me to argue either for or against treatment during the acute inflammatory stage. Protection of the parts controlled by the affected nerve cells should be assidiously carried out, and measures to stimulate absorption at the seat of the primary lesion would seem to be rational when there is evidence to show that the paralysis *may be primarily due to pressure* followed by atrophy of the large cells in the anterior cornua. further, in studying the pathology of this disease compared with the pathological findings in the cords of two patients, who suffered from herpes zoster, examined by Head and Campbell, we find that the lesions exactly correspond. Now it has been proven that in herpes, although certain of the ganglia cells are killed outright, others, however they may have been changed at the onset, rapidly recover, and clinically it would seem that in anterior Poliomyelitis cells which at first appeared to be paralyzed later resume their function.

The Primary Stage gradually subsides, and we have the secondary stage, viz., that of "degeneration and regeneration," which, at present, is certainly the most important time for treatment aiming at the prevention of deformity.

Secondary Stage:—The key-note to both the preventitive treatment, and later the mechanical and operative treatment, is the recognition of two important facts:— first, if the limb is not completely paralyzed contraction of the non-paralyzed muscles act very harmfully on their opponents; secondly, cell destruction is not so extensive as would at first appear, and the affection as far as the majority of cells are concerned is a transient and a recoverable one.

Muscles lose their power, are affected with a pseudo-paralysis from stretching and disuse. This pseudo-paralysis must not be mistaken for that resulting from a cell destruction. As an example:— a whole arm may be paralyzed. The flexors may recover first and through their contraction, possibly aided by gravity, such flexion may be produced that the extensors will become overstretched and lengthened, whilst the flexors will become shortened and contracted. In order to profit by this knowledge let us consider what are the common deformities which follow this affection, and which should be prevented. In a completely paralyzed arm the deformity to prevent is one of flexion of the wrist

and elbow, and partial flexion of the fingers; at the ankle it is extension and inversion or eversion; at the knee flexion, at the hip flexion, often with external rotation. These deformities are due to gravity, the shape of articular facets, and to unbalanced muscular action.

Immediately after the first stage of the affection under consideration most careful treatment should be persevered in to prevent deformities, and to conserve every force that remains. Massage, manipulation, and possibly electricity are the chief agents at our command during the period of "degeneration and regeneration." The first two agents are certainly of great value and the use of electricity is considered to be so by many. It is in this stage that temporary braces or supports are often necessary, although it is well to remember that we cannot hope for compensatory muscular development if we indiscriminately cage up all partially paralyzed limbs. If any branch of treatment has been neglected in the past it is this, the preventative treatment, the treatment which should be persevered in during the period of "degeneration and regeneration" that deformities may be prevented, that muscular power may be conserved.

The time for surgical intervention is as soon as possible after the attack. If this were generally recognized anterior poliomyelitis would not be followed by fixed deformities requiring tenotomy, and only those surgical procedures which aim at the restoration of power and stability would be required.

Whilst the fever lasts such medical treatment as offers a prospect of reducing its severity should be used, but when it is over the patient should remain under surgical care. The first endeavour of the surgeon should be to minimize the damage threatened to the parts governed by the nerve cells affected. In the earliest stages this is best accomplished by massage and warmth. Until one has had an opportunity of judging which group of muscles are affected, it is well to employ general massage of the parts affected. For similar purposes thick flannel or absorbent cotton should surround the extremity, but care should be taken that an already impeded circulation will not be affected. As soon as one is able to discover the amount of positive damage, massage should be mainly directed to the affected muscles, but even before this has been ascertained the limb is kept in a position opposed to the usual deformities which experience has proven are perhaps most subject to the laws of gravity. In the lower extremity the flexors are less frequently affected than the extensors, and hence the contraction will occur at the flexor aspect of the joints. This contraction not only causes the limb to assume an abnormal position, but it also overstretches the already

weakened extensor muscles, and so helps to prevent their recovery. To illustrate this statement let us take for example the treatment for this stage of an extensively paralyzed lower extremity. In such a case we would keep each joint in the position of equilibrium, say mid-way, between flexion and extension, at the same time carefully massaging to improve the circulation of the affected parts. That this treatment may best be carried out the patient should be placed in the recumbent position, and a long straight splint with a foot-piece should be fitted to the lower extremity. This should reach from the hip down to the foot and should be used with light extension. Perhaps the best splint for this purpose would be a modification of the Thomas Knee Splint. Two or three times a day this splint may be removed and thorough massage and manipulation performed, and later active and passive movements encouraged. This treatment must be continued until it is evident that no further recovery can be expected in the affected nerve-cells, when the patient should be provided with a suitable retentive apparatus and encouraged to walk. After six months it is rare for any untreated case to improve (Jones). It is now that the patient must be educated to compensate for his loss.

Tertiary Stage:—The measures at our disposal for the treatment of the deformities resulting from anterior poliomyelitis include not only education, i.e., the endeavour to educate nerve-cells not wholly degenerated to re-assume their governing function and muscle fibres their contractile powers, but operative and mechanical procedures; the former including tenotomy, tendon-grafting, arthrodesis, astragalectomy and allied procedures.

Education:—It is surprising how much can be done by educating the patient to use the muscles which are not wholly paralyzed, and in the case of deformity to use the muscles affected by a pseudo-paralysis. This is done by active movements combined with passive movements directed to lengthen contracted muscles and fascia and to shorten muscles contracted by mal-position. Perhaps here it may be well to again accentuate the fact that it is beyond peradventure that the most serious omission made in the treatment of anterior poliomyelitis and the deformities resulting has been our failure to recognize that loss of power in this affection is caused not only by destruction of motor cells, but by disuse, and the stretching due to gravity and the unopposed action of the unaffected muscles. This is not a new doctrine. It was demonstrated by Mr. H. O. Thomas many years ago. There are disabilities due to mechanical causes, and those due to central pathological changes. By a proper appreciation of this difference we need rarely encounter any paralytic deformity. Mr. Thomas was probably the first to demon-

strate this truth. The extensors of the fingers and wrists, for instance, are more frequently affected than are the flexors in an attack of anterior poliomyelitis affecting the upper extremity, and, in consequence, wrist-drop frequently results. In these cases two factors come into play. The first is gravity, which places the hand in a semi-flexed position; the second is inefficently opposed muscular action, which allows the flexors to contract. No improvement can now be hoped for until the strain is entirely removed from the over-stretched extensor muscles; we must endeavour to weaken the strong muscles and to strengthen the weak ones. Improvement can be brought about by such procedures during many years after the original lesion. This has been demonstrated by both Mr. Thomas and Mr. Robert Jones. (10)

*Tenotomy.**—The most frequently employed operative procedure for the relief of deformities resulting from anterior poliomyelitis is tenotomy. It is performed both subcutaneously and by open incision. It is nearly always a most simple operation and can be done with little fear that union will not follow; in fact, two surgeons alone, Mr. Tubby of London and Mr. Robert Jones of Liverpool, report having performed over ten thousand tenotomies with only four failures to get union.

The history and description of the operation of tenotomy are of such interest that your attention is drawn to the words of the late Mr. Noble Smith (11), a surgeon greatly interested in the orthopaedic surgery of his day:—

"There is no operation in surgery which is more firmly established, as a sound method of treatment in suitable cases, than that of tenotomy. Before this method was practised the deformities produced by permanent contraction of muscles, chiefly the result of paralysis, were found by surgeons to be almost irremediable, and they were left, practically untreated. The case of Lord Byron, for instance, is one very generally known. He suffered from a deformity which, during almost any period of his life, could have been relieved by tenotomy, and which certainly could have been cured if he had been operated upon, and thoroughly treated, during childhood.

"The performance of tenotomy as a satisfactory operation dates from the year 1831, when Stromeyer, of Hanover, commenced to divide tendons subcutaneously through a minute opening in the skin. Previous to this date tendons had been divided through an open wound, with frequent bad results from suppuration. In recent years, since the introduction of antiseptic surgery, the open method has been revived, and may

* Those interested in this operation might refer to the Biographical Notes, published by A. B. Judson in the Transactions of the American Orthopædic Association, Vol. XII, 1899.

be safely employed when absolutely necessary; but for the majority of cases the subcutaneous plan is satisfactory and more simple. The introduction of tenotomy into England, in 1837, was due to the pluck and determination of the late Dr. Little. He himself suffered from talipes equino-varus, and submitted to treatment at the hands of Stromeyer, in opposition to the advice of every English surgeon whom he had previously consulted.

"During the sixty-nine years, (now seventy-five,) which have passed since the establishment of this operation, many thousands of tendons have been divided in Great Britain alone, and the results which have followed have been so remarkably good, and attended by so few accidents, that it may be said that, with proper precautions and with a due amount of skill upon the part of the surgeon, subcutaneous tenotomy is practically free from risk.

I have just referred to 'accidents' as being 'very few.' With proper care and some experience they ought perhaps never to occur. I may, however, refer to these accidents which have been known to happen.

"1. The entrance of septic matter into the small wound, causing suppuration and possibly blood-poisoning, is an accident which, with antiseptic surgery, ought never to take place.

"2. The wound of an artery,—(when tenotomy is performed in the region of the foot) is not a serious matter, and only needs extra pressure and a prolongation of the after-treatment. Pricking an artery is worse than cutting it right through, as an aneurism may follow the former accident. Pressure for a prolonged period will, however, cure this latter complication.

"3. Injury to a nerve,—The peroneal nerve might be injured in the performance of tenotomy of the biceps femoris. If the biceps tendon is prominent, as usually happens when the muscle is contracted, there need be no fear of injuring the nerve; but if the surgeon has any doubt in the matter he had better approach the tendon by an open wound. The same remarks apply to operations in the region of nerves in the ankle and foot.

"4. Non-union of the cut tendon, weak union, and excessive length of new tendon.—I believe that these accidents, when they occur, are almost invariably due to improper or inefficient treatment after operation.

"Speaking generally, it may be said that the operation of tenotomy is less dangerous than the prick of a pin. The pin will probably be dirty, the surgeon's knife scrupulously and surgically clean.

"However skillfully a tendon may have been divided, the ultimate result will depend upon the care and attention bestowed upon the after-treatment."

"Fixation after operation.—A plaster of Paris bandage is frequently used to fix a limb after tenotomy; but although this method of fixation is simple and very effective at the time, there are serious objections to its employment. It is obvious that it is not practicable to remove a plaster bandage every few days, and yet it is of the greatest importance to watch thus closely the process of repair in the divided tendons. This repair differs considerably in different patients. In some it takes place very rapidly, in others very slowly. The gap between the cut ends may be filled up in three or four days, and the union be tolerably firm at the end of a week. Upon the other hand, there may be no apparent union at the end of ten days, or even a longer time may elapse before the gap is filled in. In some patients we find the cut ends of the tendon approximating too closely, while in others they recede too far. In the former case we must fix the foot so that the uniting material is more stretched, and in the latter we must approximate the divided ends.

"Several alterations in position may be necessary during the first fortnight or for longer after operation. In a patient upon whom I operated recently for paralytic equinus I could feel no uniting material for a long time, and I therefore gradually extended the foot so as to approximate the cut ends. At the end of the fourth week there was still a complete gap left. I then placed the foot in a position of extreme equinus. A week later a firm union could be felt, whereupon the foot was again brought up to a right angle with the leg. If this child's foot had been fixed in a plaster bandage and left for several weeks there would probably have been a very weak union, or possibly no union at all.

"To retain the foot in the desired position, small iron splints, which can be bent into any desired position by the surgeon, suffice. They should be softly padded, and fixed by adhesive strappings and bandages."

It may be briefly stated that whereas tenotomies can usually be performed subcutaneously about the ankle, at the hip and knee the incisions should always be open: to this rule there is no exception.

Although it has been the custom on this side of the Atlantic to use plaster of Paris for fixation, a light splint is, as Mr. Noble Smith suggests, certainly safer, because while employing this the progress of the case may be continually watched, and that this is necessary has been demonstrated to most of those who have practised this operation. As an example, suppose the Tendo-Achillis has been divided because of contraction of the muscles of the calf,—union has resulted, but too great a recession of the divided ends having taken place a weak and deformed structure results.

Fasciotomy.—This operation is required much less frequently for the relief of deformities resulting from anterior poliomyelitis than is

tenotomy, yet in some of the more or less characteristic deformities, such as talipes equinus, it is sometimes required. This deformity is not infrequently complicated by contraction of the plantar fascia, which may often be relieved by repeated wrenching with the Thomas wrench, but which sometimes requires subcutaneous section.

Tendon Transplantation:—This operation was first performed by Nicoladoni in 1882, Parish and Drobnik in 1892 reported cases. Since then Goldthwait and other American Orthopædic Surgeons have extensively practised it. Tubby and Jones have employed this procedure for relief of many hundreds of cases in England. In Europe Vulpius, Lange, Kunik, Glück, Kümmel and many other surgeons have adopted it.

The rationale of the operation of tendon-transplantation, to use the words of Tubby and Jones (12), is first, to utilize any ill-directed voluntary movement; and, secondly, to restore the balance of power, so far as possible, in the affected part. But it is evident that the joint can never be a fully strong one, since the amount of power at the disposal of the surgeon has been dimished by disease. Yet it must be conceded that a well-balanced joint is better than an ill-balanced and weak one.

Many have been the theories advanced as to how a central influence which has always been exerted to perform a certain definite function can be so affected that it will perform a function diametrically opposed to that which it originally performed; as, for instance, the conversion of extensors into flexors. But, putting aside theories, interesting though they be, it may safely be stated that even such radical change may frequently be made with benefit to our patient. Perhaps, in caution, it may be added by simply counter-balancing opposing forces or detracting from unopposed forces which are acting to the detriment of the patient.

Methods:—There are to-day three principal methods of tendon-transplantation.

(1) The transplantation of a strong tendon into a weak one, or vice versa.

(2) The direct transference of a strong tendon into a new and more favourable bony or periostial insertion.

(3) The transference of a strong tendon into a new and more favourable insertion by the prolongation of the reinforcing tendon by silk cords.

The first method may be performed in numerous ways which are best understood by referring to the following scheme of Vulpius. (13)

1. Both the weak and the reinforcing tendons are completely divided, and the proximal end of the reinforcing tendon is united to the distal end of the weak.

2. The reinforcing tendon is totally divided, and a slip is partially detached from the distal end of the paralytic tendon, the proximal end of the reinforcing tendon being united to it.

3. Both tendons are divided, and the proximal end of the reinforcing tendon is united to the distal end of the paralytic tendon, and the proximal end of the parlytic tendon to the distal end of the reinforcing tendon, thus effecting a double transfer, crosswise.

This method is very useful in cases where a muscle is not entirely paralysed, and it is not desired, while reinforcing it, to entirely throw out of gear the remaining healthy fibres in the weakened muscle.

4. The paralysed tendon is left undivided. The reinforcing tendon is completely severed, and its proximal end is grafted into the paralytic tendon, the distal end of the reinforcing tendon being left free.

5. The paralytic tendon is divided, and its distal end pulled on tightly and inserted into the reinforcing tendon.

6. A slip is partially detached from the reinforcing tendon; the paralytic tendon is completely divided, and the reinforcing slip is joined to the distal part of the paralytic tendon.

7. A slip is partially detached from the paralytic tendon, and inserted into the reinforcing tendon.

8. Slips are partially detached from both tendons, and the slips are sutured together.

9. A slip is partially detached from the reinforcing tendon, and inserted into the paralytic tendon.

Of these methods numbers 4, 6 and 9 are generally considered to be most useful.

Of the three principal methods that of direct transplantation into periostium or bone is, in the experience of the Children's Hospital, the most useful. As an example of this the operation devised for the relief of valgus due to paralysis of the Tibialis Anticus may be cited. The Long Extensor of the Great Toe is detached from its insertion and transplanted either into the periostium over the Internal Cuneiform or base of the first Metatarsal, or, perhaps better, through a canal bored through either of these bones.

The third principal method, viz., that of Lange, must be spoken of at some length, as it has been proven to be of great service in certain conditions the most particular of which is that of the transplantation of the flexors of the knee into the patella in cases of paralysis of the Quadriceps muscles.

Goldthwait (14) in 1897, drew attention to the fact that in paralyses of the extensors of the knee the Sartorius not only frequently escapes,

but often slipping backwards and losing the fulcrum which a fully developed quadriceps assures, becomes a strong flexor, and arguing that if this could be brought forward to the patella it would resume its normal function as an extensor, he operated in several cases most successfully. From this followed the attempt to convert certain of the ordinary flexors of the knee, viz., the biceps and semi-tendinosus into extensors by bringing them forward to the patella or the tibia, but this was found to be most difficult because of their insufficient length.

This difficulty has been, however, mastered by Fritz Lange (15) who bridged the interval between the cut end of the flexors and the periostium of the tibia or the patella with strands of silk, and this with success, as fibrous tissue soon forms around these silken strands creating, indeed, a natural extension to the original tendon.

Tendon-grafting, (at least, theoretically) as an operative procedure is a distinct advance on all methods till lately employed, but to be of value it should not be resorted to too soon after the attack of anterior poliomyelitis. Whitman (16) says, "In general, a period of two years at least should intervene between the onset of the paralysis and the operation." We should not expect too much from this operation. "Practical cure is only possible in those cases in which the paralysis is restricted to one of the weaker muscles. "Some of the most satisfactory results are those in which the main object of the procedure has been primarily to remove a distorting force, the actual transplantation being of secondary importance." "The original operation of Nicoladoni, of transplanting the two peronei muscles into the tendo-Achilles is a useful procedure in the sense that it may lessen the tendency towards deformity, but one must indeed be credulous to believe that these two feeble muscles, working at a disadvantage, can actually replace the function of the great calf muscle."

The results of tendon-grafting at the Hospital for the Relief of the Ruptured and Crippled were given, four years ago, by Gibney. (17).

Good Results in	33 per cent
Fair Results in	53 per cent
Negative Results in	14 per cent .....

In no case has it been observed that the foot or limb is in a worse condition than before the operation.

In a study of the treatment of paralyses from Anterior Poliomyelitis made by John Dane of Boston, and reported in 1904, the writer concluded with these words,— "While tendon-grafting may, in certain cases, yield a satisfactory result, the selection of cases for this operation should be much more careful than it was three or four years ago, and

for the great majority of hospital cases either astragalectomy or arthrodesis offers, by far, the greatest promise for obtaining a strong useful foot several years after operation." Dane had analyzed fifty consecutive cases operated at the Boston Children's Hospital for deformities resulting from Anterior Poliomyelitis, and arrived at this conclusion, which certainly demonstrates that the claims made by the friends of tendon-grafting were premature, and that the benefits of tendon transplantation have in some cases been shown by experience to be but transitory. This, however, has been suggested quite frequently. At the Montreal Medico-Chirurgical Society in 1903 a patient was shown who was a striking demonstration of the fact that, although, a tendon-grafting done, as in the case then before you, may be surgically a success from a practical stand-point, it may not be successful (18). At the same time it has been repeatedly proven that in selected cases tendon-grafting is one of our most valuable operative procedures for the relief of paralytic deformities in children. Experience at the Children's Memorial Hospital has demonstrated this fact, but further, although it is often wise to attempt to correct deformities by this means alone, tendon-grafting can often be more advantageously combined with other methods of treatment such as are about to be described.

Arthrodesis.—By arthrodesis is meant the denuding of a joint either completely or in part of its cartilaginous covering.

Arthrodesis was practised by Albert of Vienna in 1878. Twenty-six cases were reported by Mr. Robert Jones of Liverpool in 1894, and since that date the operation has been performed many hundreds, perhaps thousands, of times for the relief of deformities resulting from anterior poliomyelitis.

The aim of this operation is to secure fixation, or partial fixation at the joint.

The indications for the operation are,—

(1) For the correction of a flail-like joint.
(2) For the correction of a fixed deformity.
(3) Where a mobile joint is deformed at the moment of pressure.
(4) As an adjunct to tendon-transplantation.

The theoretical disadvantage is the possibility of retarding the growth of the extremity by interference with the epiphysis.

The only real disadvantage is that the limitation of movement, which necessarily results with the correction of deformity, is, as in the case of the knee-joint, often both a trial and a danger to the patient.

The possibility of retarding growth by this procedure has been proven by Dane (19) to be unlikely. Dane secured a series of X-ray photographs of the ankles of those in whom the operation had been performed.

In all of them spicules of new bone between the recently opposed bony surfaces were clearly seen. This confirmed the clinical examination which showed the two bones to be rigidly united, and, further, proved that the distance between the seat of operation and the epiphyseal junction is so great that the destruction of the epiphysis can only arise "from the grossest carelessness on the part of the operator."

In the opinion of Mr. Robert Jones this operation can be safely carried out at any age up to twenty-five years. This age limit is fixed presumably because after that age pain not infrequently follows. Many surgeons consider that arthrodesis should but rarely be performed in early life. Fifteen or sixteen years being what they consider the age of election. The advantages of an early arthrodesis are, however, thus enumerated by Dr. Dane:—

1. "By avoiding the use of costly apparatus for a period of years a considerable saving in money and a still greater saving in trouble is affected for the parents as well as the child.

2. "At an early stage in the trouble the bones are relatively normal, both as regards their shapes and their mutual articulations; nor are there marked malpositions of the foot as a whole, which so often have to be overcome in operations at a later stage.

3. "The tissues are then in a period of great plastic activity, when repair is both quicker and more perfect than in the older child. Cartilage is being changed into bone all through the foot, and we have less fear of a failure to secure bony union at the site of operation.

4. "When at an early age the foot is secured in a relatively normal position the statics of the lower limb are not so much disturbed, and growth goes on under more nearly normal conditions than can be possible when there as a constantly increasing tendency to the transmission of weight along abnormal lines.

5. "By avoiding mechanical support the unaffected and partially paralyzed muscles are not subjected to the injury inseparable from the use of constricting bands and straps. They have, in consequence, a freer blood supply and develop more rapidly. The improvement in muscular power in the two cases which I have to report was, however, in excess of what I can account for from this cause alone. Provisionally I would suggest that it may be due to the rigid fixation of the ankle-joint preventing abnormal movements from overextending the weakened muscles and exciting reflex action, and still more to its giving the child a sense of security which causes it to exercise more freely and naturally."

Arthrodesis is undoubtedly an operative procedure of great value when performed at the ankle. Its value at the knee-joint is question-

able, as this joint can be governed so well by apparatus and it seems doubtful whether it is wise to submit the patient to the discomfort of an immoveable knee-joint when it is remembered that this joint can be controlled by a double upright brace with a catch-joint under the patient's control; and, again, it is necessary to realize the increased liability to fracture in an extremity presenting so great a leverage. Further, it has been proven that in certain deformities about the ankle and especially that of calcaneous, the allied operation of astragalectomy will often be more satisfactory than will arthrodesis.

Astragalectomy.—Of all deformities of the foot that which has proved the most difficult to control is calcaneus. Its cause is the loss of the calf muscles. When those muscles which are attached to the posterior surface of the Os Calcis are paralyzed, the extensors being insufficiently opposed, dorsal flexion results and the posterior surface of the os calcis assumes the position of the inferior surface. To this condition a secondary deformity is added. The longitudinal arch becomes exaggerated through the action and retraction of the remaining unparalyzed muscles and the tissues.

Innumerable varieties of braces or supports have been suggested for the temporary rectification of this deformity, yet the general results of mechanical treatment have been unsatisfactory. Willett's operation of shortening the tendo-Achilles can hardly be expected to suffice.

Although tendon-transplantation was first performed by Nicoladoni for the relief of this deformity, the two peronei being drawn back and used to reinforce the tendo-Achilles, this condition, of all others, as Whitman (20) has pointed out, is where tendon-grafting is of least value, for how can the peronei be hoped to replace the calf-muscle which is stronger by ten times than the two muscles used to replace it?

Arthrodesis, in many cases, is quite sufficient to relieve this condition of calcaneus, but when we have a compound deformity, where lateral deformity is present, arthrodesis may not suffice, in which case astragalectomy will probably result in a useful foot for the patient. In performing this operation, however, it is best to follow Whitman who, perhaps best, described its usefulness for patients presenting the Calcaneus deformity, and to combine with it both tendon-grafting and arthrodesis.

Nerve Transplantation or Anastamosis.—This is an operative procedure which theoretically suggests many possibilities, but which practically has not yet been shown to be justifiable, except in a certain few conditions.

One of the first experiments made in the transplantation of a nerve was that of Faure in 1898, This was followed by that of Barrago-

Ciarella in 1901, as well as by Manasse in 1900. Harvey Cushing reported a case of nerve anastamosis in 1903, and since then many orthopædic and other surgeons have reported operations with varied success.

Although such operations as the transplantation of the spinal accessory nerve into the facial in cases of paralysis of the latter nerve are certainly justifiable, as so little is sacrificed by these procedures, it is difficult to see what can, under ordinary circumstances, justify the transference of either a nerve whose function is of any importance into one whose function is lost, or the anastamosis of a nerve whose function is lost with a nerve of any importance, because of the danger of injury to the latter. Again, in orthopædic practice, how rare it is to find a condition where the opportunity of relieving deformity by nerve anastamosis can be considered, although there is no possibility of improving our patient's condition by tendon grafting and the allied procedures already described as rarely followed by painful results.

From a neurological point of view nerve anastamosis and the possibility of the transference of nerve impulses, through a new and artificial course, is of great interest, but as a practical surgical procedure the field of its usefulness seems to be most limited.

Conclusion.—In discussing the treatment of the deformities resulting from anterior poliomyelitis very little has been said about the use of mechanical apparatus. This omission is in keeping with the purpose of the paper, because rarely has experience demonstrated that the application of a brace is followed by improvement. It is true that progressive deformity is often prevented by the application of a brace; but yet how often, coincidentally, has a clumsy and imprisoning apparatus prevented the freedom necessary to the natural development of unparalyzed and but slightly paralyzed muscles! It is certain that we must continue to use mechanical supports in many conditions, but we should rarely advise such means of control unless all other methods have failed; or, again, unless we are dealing with inoperable conditions; or as a useful adjunct to more scientific surgical procedures.

EXAMPLES OF TREATMENT.

Paralysis about the Ankle Joint.—The most common deformities resulting from paralyses at the ankle are:—

Talipes Equinus, due to paralysis of the Extensors.

Talipes Calcaneus, due to paralysis of the Calf Muscle.

Talipes Varus, due to paralysis of the Peronei.

Talipes Valgus, due to paralysis of the Tibiales.

There may be compound deformities. Either of the first two may coexist with either or the second two, i.e., an anterior-posterior deformity may coexist with a lateral deformity.

In the treatment of any of these deformities the first consideration must always be whether the condition is a fixed-deformity, i.e., where the deformity is the result of persistent malposition acting on the bony structures and deforming them, or whether the deformity is the result of a stretching, a contraction, or a stretching and a contraction, of any group of muscles or opposing groups of muscles.

In the first class of cases it is very doubtful whether any operation or means of treatment which falls short of an osteotomy or arthrodesis will suffice; but in the second group it is quite frequently unnecessary to do more than tenotomize or transplant, or, perhaps, combine the two procedures. As an example, quoting from the words of Messrs. Tubby and Jones:—It is quite evident that a case of simple talipes, or of the compound form may be efficiently treated in either of two ways, less scientifically, by dividing and lengthening the tendons of the sound muscles and maintaining the foot in the corrected position by apparatus for an indefinite period; or, more scientifically, by distributing around the joint some portion of the power possessed by the sound muscles running to waste. And in the latter method lies the principle of tendon-grafting. If however we are not dealing with a case of simple talipes, but one where the bones have been displaced and deformed, it is most probable that nothing but the removal of part of the deformed bone, or even the whole bone, will be satisfactory.

Talipes, Equinus, Equino-Varus and Equino-Valgus.—This deformity is usually complicated by flexion at the toes with yielding at the mediotarsal joint and a compensatory shortening of the plantar fascia. It is due to a paralysis of the extensors with a compensatory contraction of the muscles of the calf.

Our first procedure should be to stretch, or divide, the plantar fascia. The condition of varus or valgus should then be rectified. It is then necessary to tenotomize the Tendo Achilles, which procedure should be followed by a carefully selected posture assuring the adoptive shortening of the extensors in cases where it is certain that these only are affected with a pseudo-paralysis due to stretching. This position can best be maintained by either plaster of Paris or a suitable iron-brace, which latter method is to be preferred as the brace is easily removeable and allows of massage and other methods for the revivifying of muscular fibres. In obstinate cases osteotomies and arthrodesis must be considered.

Talipes Cancaneus.—This deformity is due to paralysis of the muscles of the calf. On account of this fact that neither tenotomy, nor mechanical treatment ever could be expected to give satisfactory results Whitman (21) proposed the removal of the astragalus. This operation

he has performed with success, and it has been in the past the practise in the Children's Hospital to follow him in this, as in many other methods of treatment. There are, however, certain dependant deformities, such as the contraction of the plantar fascia, which must previously be dealt with, and others such as valgus and varus which are dealt with concurrently. Tendon-transplantation may be tried in this form of deformity either in conjunction with the more radical operation suggested above, or it may be tried previously, although as Whitman has pointed out this procedure is of less value in this condition than in all others because the muscles of the calf are nearly double the strength of all the other muscles of the foot combined. If this procedure is decided upon the Peroneus Longus and the Flexor Longus Hallucis are usually grafted into the Tendo Achilles, but it has been noted by Tubby and Jones, surgeons who are more favourable to less radical procedures in the treatment of this condition than is Whitman, that at least the removal of a wedge-shaped piece of the astragalus is often advantageous, indeed necessary, if calcaneus be accompanied by either varus or valgus. These English surgeons recommend that an arthrodesis be performed when the paralysis is severe, but this may be disappointing if lateral deformity be present.

Hoffa (22) recommends an oblique osteotomy of the calcaneus so as to bring the tuber calcanei upwards and thus obtain "a real shortening of the tendon;" but it is difficult to see that Hoffa's procedure is any better than that of Walsham or even Willett, which consisted essentially of shortening the Tendo Achilles which experience has shown to be frequently of little more than temporary value.

In the Children's Hospital arthrodesis, with tendon-transplantation, is preferred, but experience has demonstrated that not infrequently it has been found necessary to remove the astragalus to obtain a satisfactory result.

Talipes, Varus and Valgus.— In severe cases these are treated by either tendon-transplantation or by arthrodesis. In the treatment of valgus the experience of the Children's Hospital has shown that the transference of the Extensor Longus Pollicis into the Internal Cuneiform, or base of the first Metatarsal, via a tunnel drilled through such bone, is of great value. Others may bring the Peroneus Longus across the dorsal aspect of the foot and fix it into the Tibialis Anticus or such similar operation. Apparatus is often quite sufficient in the milder forms of this deformity.

Complete Paralysis of the Muscles about the Ankle Joint would suggest an arthrodesis. This operation often proves to be most helpful in the treatment of patients afflicted with this deformity.

Paralysis of the Muscles Controlling the Knee Joint.— In this condition the surgeon must first assure himself that no contraction of the flexors is present, because if these be contracted they must either be lengthened by extension or tenotomized by the open method. If no contraction remains to be dealt with the surgeon must ascertain what muscles retain sufficient strength to be made use of. As has been mentioned previously, Goldthwait has drawn attention to the fact that in paralyses of the Extensors the Sartorius often escapes, and further, sometimes acts deleteriously as a flexor. Consequently, the transference of this tendon may change what was a power for harm into a power for good. If the Sartorius be paralyzed, but the flexors remain, an attempt may be made to convert these flexors into extensors. This may be done by the method usually ascribed to Fritz Lange. For a short time, at least, after either of these operations, or in the case of inoperable conditions, the caliper knee splint of H. O. Thomas is suggested, although many other controlling agents may be of equal benefit.

Before leaving the subject of the paralysis of the muscles about the knee joint it may be well to state that what is called genu recurvatum sometimes accompanies these conditions. This, however, is usually relieved by the operation suggested to relieve the deformities resulting from the paralyses.

Paralyses about the Hip.—In the study of paralyses of the muscles in relation to the hip-joint the frequent escape of the Psoas and Illiacus will be noticed. This is fortunate, because if even these muscles alone retain their function it seems possible to assure some means of voluntary locomotion in the majority of cases.

In paralyses of muscles about the hip-joint contractures must first be dealt with. After this a suitable splint, such as what is known as a double upright with a pelvic band, or the caliper splint of Mr. Thomas should be secured. The patient should then be educated to walk with one of these and the aid of crutches if necessary.

A paralytic dislocation of the head of the femur may accompany an extensive paralysis of the muscles about the hip-joint. It is often best not to attempt a reduction in such condition.

Paralyses of the Muscles of the Upper Extremity.— Many of the deformities resulting from these conditions can be improved by Mr. Thomas' method of muscle-shortening, as has been already described. For others, tendon-transplantation is indicated, and has been employed with success. The Triceps has been transplanted into the Biceps, and the Pectoralis Major into the Deltoid by both Mr. Tubby and Mr. Jones. Hoffa (23) has transplanted the Trapezius "to the position of a paralyzed Deltoid." Mr. Robt. Jones describes a method for the fixation of a

flail-like elbow by the removal of a diamond-shaped piece of skin from the front of this joint. In some cases most power could be placed at the disposal of the patient by excising the head of the humerus.

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TWO CASES OF CAESAREAN SECTION.

BY

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At the outset of this short report the writer wishes to frankly confess that he was formerly much opposed to the growing frequency with which the operation was being resorted to, not so much in the cases of contracted pelvis, as in those of puerperal eclampsia and placenta previa. If he has changed his opinion, it is largely due to the brilliant series of cases reported by Dr. H. L. Reddy, the Director of the Montreal Women's Hospital.

The writer's objection, however, was only relative, and not absolute; for, as long as the operation had a higher mortality than the condition it was intended to relieve, he felt that it should only be resorted to in extreme cases. As soon as the technique had been so improved that there was almost no death rate to the operation he became an ardent con-

[1] Read before the Medico Chirurgical Society of Montreal, 16th November, 1906.

vert. And now we have found out that even the high death rate which used to follow was not due so much to the operation as to the delay in performing it. Any operation will have a high death rate when performed on infected and dying women, but if Cæsarean section is performed early enough it is almost the safest of all abdominal sections. These two cases are reported in the hope that other desperate cases may have the advantage of this benign treatment. The word "benign" is used, because the operation is free from the lacerations and bruises which are inevitable in the accouchement forcé especially when the Bossi dilators are employed. These have a high death rate from hæmorrhage and infection. Case I. Mrs. B., age 23, came under the writer's care, 6th November, 1905, complaining of leucorrhœa, and saying that she had had two miscarriages, and was anxious to have a living child. She had first menstruated at 13; but it did not appear again until she was sixteen. She was married at 21, and had two pregnancies, miscarrying the first time at three months, and the second at two months. On examination the uterus was found subinvoluted and retroverted to the third degree. It was easily replaced, and a pessary was inserted. This however, was removed at her next visit as it hurt her; so medicated tampons were inserted in the knee-chest position, which kept the uterus up, and soon relieved the leucorrhœa. She had some nausea and constipation, but they disappeared under laxatives. It was supposed that the miscarriages were due to the retroversion and when she became pregnant about the end of January care was taken that the uterus was kept in good position. As she was very anæmic she was put on iron tonics, when her general condition improved. She was not seen again until April, when she was judged to be about two months pregnant, the uterus being in good condition, and there being no albumen in the urine.

She was told to come at the end of the sixth, seventh and eighth months, to have the urine examined. She was not seen again until the early morning of 5th August, the day before she was to have come to have her urine examined, when the writer was called to her home to find her in a profound coma, having had three convulsions in rapid succession. She was examined with a view to rapid delivery, but the cervix was long and absolutely undilated. She was given a hypodermic of morphine, and a salt enema, but her pulse being slow and weak veratrum viride, the writer's favorite remedy was contra-indicated. Bromides in 40 grain doses were given by rectum but no chloral or chloroform. As the convulsions were less frequent, it was thought that labour might soon begin, so we waited until four in the afternoon, when there still being no attempt at dilatation she was taken to the Samaritan Hospital

for Cæsarean section. Her urine drawn by catheter at 7 a.m. was found to be loaded with albumen and very scanty. She was somewhat hastily prepared, and Dr. Reddy kindly gave the writer the benefit of his assistance. The incision was made in the abdominal wall and uterus, and the child was removed, still covered with the unruptured membranes, which were at once ruptured by one of the staff who took care of the child.

It was surprising how quickly the small incision in the uterus could be enlarged by tearing up and down with the two forefingers, and the feet caught, and the whole ovum, placenta and all, could be extracted. There was almost no bleeding as Dr. Reddy controlled it by holding the broad ligaments. What took the time was the sewing up of the opening in the uterus with interrupted silk sutures to the number of about twenty, and then a second row of running catgut sutures over them. The abdominal wall was closed with through and through silkworm gut. The whole operation took forty minutes, but could have been done in twenty if the uterus had been closed with two rows of running chromacized catgut. The infant appeared to be less than seven months, and was sent at once to the incubator. It did well, and is now a healthy normal child. The mother lived for three days after the operation but although her urine improved very much she never regained consciousness.

Case II. Mrs. K., 38 years of age first came under the writer's care eight years ago, saying that she had been pregnant twice, but that each time she had to have the child destroyed by cranotomy. She was told by her physician that, owing to a contracted pelvis, she would never be able to have a living child. Dr. Reddy kindly measured the pelvis for me, and reported an antero posterior diameter of 9½ centimeters or 3¾ inch. At that time symphisiotomy was much in vogue, so the writer told her that he would take her to the hospital as soon as labour began, and deliver her by dividing the symphisis pubis, with a good chance of the child being born alive. In due time labour began, and she entered my private hospital, and as soon as dilatation was complete preparations were made for the operation. Just before resorting to it, it was thought well to have one try with the long forceps. By drawing well down something was felt to crackle like stiff parchment, after which the head came down quite easily. That child is now a well-developed girl about eight years old. The crackling was thought to be the parietal bone being indented enough to let it pass the promontory. The mother was warned if she ever became pregnant again to eat very little, so that she might have a small child. The result was that she had a boy and a girl after

that by the aid of the forceps, the boy, however, requiring great force to extract the head. She got through these two so well that she forgot about the difficulties with the first three, and began to eat more heartily than ever, so that the writer was rather dismayed when she appealed to him again this summer looking as if she had been feasting during the whole of her pregnancy, for it it was feared that the child's head would be correspondingly large. In due time labour began and was allowed to go on for fully twenty-four hours in the hope that the head would engage. As it had not done so at the end of that time efforts were made for nearly an hour with the help of Dr. McGovern to get the head through, without being able to get it to enter the brim of the pelvis. As the writer was somewhat worn out with the exertions during a very hot night, and as her pulse was beginning to show the effects of the prolonged anæsthesia, he decided to send her to Dr. Reddy for Cæsarean section, but finding that he was at the seaside, she was brought to the Samaritan Hospital, the staff was hastily summoned, and about 11 p.m. Dr. Johnson assisted the writer to open the abdomen. The incision in the uterus went through the placenta, and was enlarged by tearing with the fingers as in the previous case, although in that one the placenta was not cut through but taken out whole with the membrane. Everyone present was struck with the ease with which the child was pulled out, the placenta peeled off, and with how slight a loss of blood. The hæmorrhage was prevented by Dr. Johnson compressing the broad ligament, and no blood was allowed to get into the abdomen. What took most of the forty-five minutes was closing the tear in the uterus. The child which was alive a few minutes before, was born dead and could not be revived, its head having been considerably compressed by the forceps. Another time it would be better not to use them at all but to do the Cæsarean section at first instead of at last. The woman herself was considerably bruised, but as she was kept aseptic, no harm came of it, her temperature being normal all through. On account of domestic troubles she went home in two weeks but the through and through stitches were only taken out a week later.

The first thing she asked when she recovered consciousness was whether the operation had been done in such a way that she would not have to undergo it again. It was intended to remove a piece of the tubes so as to sterilize her, but this was forgotten during the exciting interest of the operation. Naturally the woman was disappointed, but the writer no longer considers the operation a serious one if done before much bruising has been caused by prolonged attempts to deliver with the forceps. Certainly in any case where the antero posterion diameter is over 9 centi-

meters the forceps should be tried with moderate force, for this woman was delivered three times out of six by their aid. The writer is convinced that an expert operator could do a hundred Cæsarean sections without a death from the operation, although a certain number would be lost from the disease for which the operation was performed too late. As a result of his experience in the first case the writer will in future urge every pregnant woman to have the urine examined every month from the beginning of pregnancy and not only during the last three months; and if he has a case of eclampsia where the pulse is slow and weak and the os undilated he will not again wait for ten hours before operating.

TWO CASES OF PERFORATED DUODENAL ULCER.

BY

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The following two cases of perforated ulcer of the duodenum have come within my experience during the last year:

Case I.—On October 13th, 1905, Mr. G., aged 36, consulted me in my office for dyspepsia. He complained of a "belching up of wind," together with a feeling of discomfort and pain, coming on soon after eating; he had no vomiting. As he looked thin and pale I advised him to take a holiday in the country, especially as he had been overworked and had taken no vacation during the summer. At this time, I prescribed a bismuth and soda mixture.

A fortnight later he called to see me upon his return to the city, and told me he was feeling much better.

On December 2nd, 1905, six weeks later, I was sent for in the early morning. At 3 p.m. the day before, whilst standing at a desk down town, he was seized with a sudden severe pain in the upper part of the abdomen. The pain was so severe that it made him feel faint and nauseated. He immediately walked to the street car and from the street car to his house, a distance of 300 yards. There were no other symptoms at the time, neither vomiting, nor diarrhœa.

Upon inquiry into his condition since consulting me in October, I learnt the following:—Upon his return to work the old symptoms of indigestion returned, especially the "belching up of gas," which usually took place two or three hours after food. This occurred no matter what food was taken, and for two weeks he lived upon fluids, lacto-globulin, thin gruel, milk and broths, but without relief. For the

week immediately preceding, he was under the care of an osteopath of this city, who ordered a test breakfast of two boiled eggs, some toast and coffee. Three hours later he withdrew the contents of the stomach and reported that the stomach was perfectly healthy and advised massage. He massaged the abdomen three times before the onset of the acute symptoms, the last time being the night before their onset.

As soon as the patient arrived at home he sent for this osteopath, who massaged him for a considerable time but without relief. Shortly before midnight he telephoned for him again, when he advised his sending for a regular physician to give a hypodermic injection of morphine as that would relieve him.

On examination, the patient is a man of about age stated. somewhat thin, mucous membranes, pale. Face has a most anxious, drawn expression and shows evidence of much pain. P. 84, R. 24, T. 98.

Lymphatic, respiratory and circulatory symptoms negative.

Digestive System.—Subjective: a great deal of sharp pain in upper part of abdomen and some nausea; objective: Tongue somewhat dry and coated on dorsum with whitish fur, edge and tip clear.

Abdomen.—On inspection, very little movement on respiration; distinct fulness in epigastric region. On palpation, there is tenderness over the whole of the abdomen, especially marked in the upper half, muscles tense in upper portion. There is a tympanitic note over the whole abdomen with the exception of the right flank, where there was definite dulness. Liver dulness was obliterated and replaced by a tympanitic note.

From the history and the condition of the patient, I was of the opinion that the man's dyspepsia was due to an ulcer of the stomach and that at the onset of the acute pain it had perforated.

Dr. F. G. Finley, who saw the case with me, concurred in the diagnosis, but suggested that owing to the symptoms returning in two or three hours after food, that the ulcer was probably duodenal.

The patient was removed to the General Hospital and operated on at 12 noon, twenty-one hours after the supposed time of perforation. The duodenum was found perforated in its anterior wall about half an inch outside the pylorus. An ordinary lead pencil could easily be inserted into the opening.

The patient made an uninterrupted recovery, and a few days ago, when I saw him, he told me he could eat anything; he feels better and weighs more than he has for years.

Case II.—On the morning of June 20, 1906, when in camp with the militia, Gunner G., æt. 44, was brought into the Field Hospital

on a stretcher. He complained of a sudden, severe pain in the right upper portion of the abdomen. The patient said he was standing by his horse when he was suddenly seized with severe pain in the stomach. He told a friend standing near that he felt weak and dizzy, and this man held him and so prevented him from falling. He was brought at once to the hospital. He had no vomiting and no diarrhœa. On admission, the patient is a large-framed, well-built, bulky-looking man; no anxious expression of face, but he complained of great pain in the right upper quadrant of the abdomen: pulse 68, regular, of good volume and tension, temperature 98, respiration 24. There was nothing to be noticed on examination except that there was tenderness over the right upper quadrant of the abdomen just below the ribs. I thought at once of the possibility of gall stone colic, and as the man appeared to be suffering a great deal, I ordered ½gr. morphine hypodermically.

About two hours later one of the hospital orderlies came to me, reporting that the man seemed to be suffering a great deal and appeared to be no better. I went to see him, and upon inquiry, obtained this history:

For the last three or four years he had suffered much from indigestion, with pain and gas in the stomach, coming on two or three hours after food. At times he said this was so severe that he was almost afraid to eat. Solids caused much more pain than liquids. For the past three or four months, however, he said he had felt better than he had for years and had practically no indigestion. He had never had a similar attack of acute pain and was never jaundiced.

The case which I have previously reported having been so recently under my care, the symptoms and history being so similar, I came to the conclusion that this man was suffering from the some condition, and, upon discussing the case with Dr. Hill who was with me at the time, he agreed with the diagnosis. We advised immediate operation, but the man would not hear of it. All he wanted was a cup of tea and then he would be ready to leave the hospital. I gave him a second hypodermic of morphia gr. ¼, and forbade all food, only allowing occasional sips of water or a little ice. During the rest of the day the patient felt much better and complained of very little pain.

In the evening his temperature was 98°, pulse 80, respiration 24; he had no vomiting; an enema was given with good result. The next morning his chief complaints were of pain in the right back, at about the level of the 10th spine, and up the neck, which made me think the perforation was posterior. His condition was otherwise unchanged,

and he grumbled a great deal at his deprivation of food; he would not hear of an operation and wished to be allowed to get up. His temperature was still normal, and he had practically no distension of the abdomen, and only a little tenderness in the right upper quadrant. I had him at once transferred to the Sherbrooke Hospital, but he would not consent to operation until the following morning, when a large perforating posterior duodenal ulcer was found the size of a five cent piece just outside the pylarus. A quantity of bile-stained fluid was found in the peritoneal cavity. The patient died shortly after the operation, which was not performed until 48 hours after perforation.

THE UNIVERSITY MAGAZINE.

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In the main hall, of the South Kensington Museum, there are some models illustrating malarial and trypanosome diseases. The tsetse fly is upon a colossal scale, and looks like a dragon two feet long. A coster, after gazing at the model said, "It ain't much wonder as them 'orses in South Africa 'ad a thin time, if there's many o' them flyin' round" *The Boston Medical and Surgical Journal.*

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MORTALITY IN MONTREAL.

The report of the Medical Health officer for 1905 has been issued, and bad as our statistical figures are, the daily press has not dealt as gently with them as they deserve. In a sub-title we find the remarkable statement that "last year the death rate amongst those under five years of age was 56.31 per cent." Truly, this out-herods Herod. We venture to think that the figure is 56.31 per 1000, and, while this is doubtless not small, it must be remembered that we are in the habit of speaking of death-rates of about 20 per 1000 of population in many cities, even when those of all ages are included. The heaviest mortality, even of those under five years, is comprised in the children under 6 months, and this is 30.42 per 1000. We must admit that hygienic factors, or rather the lack of them, may be at work, and the question of milk supply is by no means an unconsidered one. Of those children between six months and five years a considerable number die from infectious diseases, and in this direction

the mortality can and must be lowered. It is a melancholy consolation that seven cities, (one only of them in America) are no better off in general mortality than we: it is a matter of conjecture whether or not all causes of death are allowed to figure in Moscow and St. Petersburg, which are two of the seven. Against their bombs we have somewhat to set ourselves, in the ready knife and pistol, but this also we trust will soon prove a preventable cause.

The report excludes from our mortality illegitimate births, because the greater portion of the illegitimate children do not belong to the city—a statement we would make bold to question. In any case, we are no worse off than are other cities of like size, and it seems rather unfair to alter our statistics in this way, when the children actually died in the city; there is no use in shutting our eyes to mortality that exists within our confines, merely that we may not appear to disadvantage.

On the other side of the ledger, our birth rate, thanks to the French-Canadian population, is a high one, and since the years of childhood are those which show the highest death rate, it is perfectly right to avail ourselves of this slight advantage, and to point out that a high birth rate of necessity means a slightly higher death rate.

A MODERN SIALAGOGUE.

There are some who are inclined to laughter, because the committee of the new Students' Union has found itself debating the question, shall we, or shall we not, have cuspidors? Yet here is a question of considerable importance, and one that has a wide physiological bearing. Without making the statement that supply regulates demand, we may point out that the cuspidor is actually a sialagogue, which suggests afar off the little bottles that Wonderland Alice used to find with a convenient label attached: "Drink me!"

A cuspidor in the middle of a room is an instant outstanding invitation which, thanks to ancestry and inherited habits, compels attention. Nor should it be overlooked that the day of the ptyalic marksman has gone, though the village hotel does even yet ring with the noise of his prowess. In the matter of cuspidorial markmanship nothing but a bull's eye will do: an inner is annoying; a magpie or an outer, disgusting, for, is not secretion of saliva a stage in the physiology of nausea? —and a miss is appalling.

Besides, on the sialic range, if many misses are recorded, the marker, who is the janitor, may give notice. Of course it has been already been suggested that the "shots" should be classified; the nursery match for green shots, a more advanced larger range for second-class shots, where-

as first-class shots would be allowed in the main living rooms. The position this leads us to is this: if a cuspidor induces a man to spit who had no thought or intention of doing so, and if one man in ten misses the mark, the city by-law is at once infringed, and the public health hindered, to say nothing of the public taste being outraged. To guard against the possibility of bad marksmanship, the only recourse is to increase the size of the target: and whereas a small dainty cuspidor, nickelled, six inches in diameter is an article of vertu, the blatant brass of twice its size, is a suggestion of a bar room, a sawdust floor, and a row of bottles.

We have hitherto not spoken of this matter in its relation to smoking, because it really does not specially relate to that art. The secretory effect of tobacco, in the form of smoking at least, depends upon whether a man has learned to smoke out of doors, or indoors: in the matter of chewing, also, it is said to depend upon whether or not the habit has been practised in the schoolroom during schools hours or otherwise. In any case, the time has come when mankind, unless he drive a dray or a cab, is face-to-face with the early divorcement of tobacco and saliva.

In a difficult matter such as this, we can see nothing but the following solution: that a certain part of the Union kitchen should be set apart, where after 6.30 p.m. the boots could be removed, sock-feet being *de rigueur*, a commodious woodbox might be provided, and a few tilting chairs supplied. Should, however, the cuspidor win the day, we would suggest in addition, that each article be provided with the legend "The gift of the League for the Prevention of ——."

ADVERTISEMENT BY CABLE.

Truly, the progress in medicine is by leaps and bounds. On December 11th—memorable day—the newspapers contained two messages by cable, the one from Paris, the other from London, announcing a cure for pneumonia, and for suppuration of the middle ear. The remedy for pneumonia is the subcutaneous injection of a metallic element. The discoverer, Dr. Robin, announces that "the kind of metal used seemed to make little difference, although heavier metals and gold and silver appear to have stronger action."

The originator of the important advance in aural surgery is "Dr. Heath" who is described as "a keen Irishman, well known to Americans, many of whom come to London to study under him." The operation, we are informed, consists in draining the middle ear without mutilation of the mastoid bone. It is further described as a variation of the mastoid operation and makes possible the preservation of, and in many cases the restoration of hearing.

A pleasant little anecdote is added which runs as follows:—One time a young American met Dr. Heath as he was leaving the operating theatre, where he had just concluded seven operations. On hearing this the American said: "Well, we are pretty quick in the United States, but that beats us."

As soon as the despatch was published telephone bells began to ring. Probably that was the object in its publication—people have now grown so wise in all matters pertaining to medicine. We are further informed in the despatch that the "Otological Society recently discussed Dr. Heath's methods." We wish to bear testimony to the fact that the Society did discuss them, and in pretty plain terms too, if the despatch refers to Charles J. Heath, surgeon to the Golden Square Throat Hospital. The circulation of this JOURNAL is limited, and it does not aspire to set the whole world right. Yet we purpose stating a few facts in connexion with this revelation in surgery.

More than two years ago—to be exact, December 5th, 1904—a paper was read by Charles Heath, entitled: "A paper, founded upon an experience of 400 operations, on the restoration of hearing after removal of drum and ossicles by a modification of the radical mastoid operation for suppurative ear disease." The writer referred to a meeting of the Society a year previously, at which he had shown "a large number of cases with restored and excellent hearing." In the *Lancet*, August 11th, 1906, a paper with a similar title appeared from the hand of the same author, so that the thing is not as new as it would seem to be from the urgency of a cable message.

The matter appeared so important that discussion was postponed till the meeting of February 6th, 1905. Dr. Urban Pritchard described the paper as an unfortunate one. He thought from the greatness of the number, that many of the patients did not require operation, and that the modification in the method was so slight that it was not in reality a new operation. Finally he thought it a pity that the paper had been published, as it was, in the *Lancet* December 24th, 1904. Mr. Macleod Yearsley said that the cases appeared to him as examples of Stacke's operation, and that one woman at least might have recovered her hearing without any interference. Mr. Chichele Nourse was of opinion that Mr. Heath's procedure differed from the usual operation not in principle, but simply in attention to certain details. Dr. William Milligan thought that in many respects it was an unfortunate paper, and that Mr. Heath had started from premises which were entirely wrong. This speaker went so far as to question the reliability of the statements as put forward. Mr. Ballance remarked that the enthusiastic way in which the paper was written was the only thing which appealed to him. Dr.

Macnaughton-Jones also doubted the validity of the statistics in plain terms, and the president, in conclusion, lamented the absence of precise scientific details in the paper.

No one pretends that Mr. Heath is responsible for sending out this absurd report as news of an incident which happened two years ago. Probably he would wish that the thing had been left to the oblivion of the official transactions. It is the fashion of English writers to amuse themselves with the vagaries of obscure American practitioners. We undertake to remind them that the greatest offenders are not in the United States, and that they are not obscure.

The league for the prevention of Tuberculosis in Montreal offers a prize of twenty-five dollars for "a short, intelligent and readable catechism dealing in concise, clear, direct and non-technical terms with the subject of hygiene in its relation, especially to the prevention and cure of consumption." This sum does not seem excessive for such a marvel of the literary art. No catechism is short; few are "intelligent," and none are readable. One question proposed is: "Why is consumption called the white plague?" It would be worth twenty-five dollars to obtain an adequate explanation of that curiosity in metaphor. It would be worth another twenty-five dollars if the employment of the simile could be stopped.

The Provincial Board of Health is one of the most enlightened bodies in the country. According to the most recent regulations dealers are prohibited from offering for sale any bird from which the entrails have not been drawn when the bird was killed. The offal which was previously left in the carcase imparted to the flesh a faecal odour which was disgusting, and unwholesome. In extreme cases the dinner-table became redolent of the farm-yard. The use of the chicken fell into disfavour amongst persons of cleanly habits in eating. Now, it is likely that the dainty bird will regain the popularity which it deserves.

Canadian Outdoor Life has appeared, as a new magazine. It is published monthly by the National Sanitarium Association, and the editor is J. S. Robertson, who is also the Secretary of the Association. All profits from the magazine will be devoted to the maintenance of patients in the Muskoka Free Hospital for consumption. The subscription price is one dollar a year, and the address 28 Adelaide Street West, Toronto. We give the new magazine a good welcome.

According to the *Globe* of 8th December, there are great doings in the Toronto General Hospital.

Medical Science Revolutionized: Epoch-making Discovery in the Treatment of Germ Disease: Mathematical Medicine: The Greatest Advance Step made in Years: Successful Experiments Conducted at Toronto General Hospital with the New Treatment of All Diseases Due to Microbes: A Cure for Tuberculosis: The Oposonic Theory. Such is the heading of the article which contains many famous names, chiefly of younger men. We wish the thing was true: but it is not.

Here is an extract from a letter which makes glad the Editorial heart: "Enclosed you will find my cheque for three dollars, amount of subscription: for fifty-three years I have been a subscriber to your JOURNAL."

BLOOD PRESSURE.

One of the most profitable discussions at the British Medical meeting in Toronto was that on "Blood Pressure in Relation to Disease."

In opening the discussion, Prof. Percy M. Dawson, of Johns Hopkins, stated that, for practical purposes, we want to know two things about the circulation of our patients: 1. Are their tissues receiving a normal amount of blood. 2. Are their hearts being over-taxed in keeping up this supply. He then proceeded to show how a study of Blood Pressures may help us to answer these questions. The first step is to determine by means of an appropriate instrument the pressures in one of the larger arteries during both the systole and the diastole of the heart.

The difference between the systolic and diastolic pressures is known as the pulse pressure. The pulse pressure varies directly as the output of the heart and is a fairly reliable indication of the amount of blood being pumped out to the tissues at each heart beat.

With the data which we have now obtained it is possible to estimate pretty accurately the work that the heart is called upon to do. At each beat it has to force a certain amount of blood out into the aorta against the pressure existing there. In other words, to get the work of the heart at each beat we multiply the output by the average pressure in the aorta; but the output is proportional to the pulse pressure, and the average pressure in the aorta can be shown to equal the diastolic pressure *plus* one third of the pulse pressure. We can thus determine approximately how much work the heart is being called upon to do. Prof. Dawson was careful to point out that the results obtained by these methods as yet are only relative or approximate. Further improvements in our methods are necessary before we shall be able to attain perfect accuracy.

Dr. G. A. Gibson, of Edinburgh, was the second speaker. In the study of blood pressure he claimed that we should keep the following objects in view. 1. To ascertain the height of the blood pressure. 2. To analyse the factors concerned in its maintanence. 3. To assess the relative importance of each.

He pointed out the relative influence on blood pressure of the heart-beat, the condition of the smaller arteries as to constriction or relaxation, the dependance of these on the vaso motor nerves, the state of elasticity of the vessel walls, the amount of blood in the body and its viscosity. He ridiculed those who pretend to estimate the blood pressure by their "trained finger," and cited instances where the finger had proved very unreliable, and misleading.

He described the principles involved in the various instruments for measuring blood pressure, and recommended those that act by obliterating the pulse at the wrist by a constricting band around the upper arm. Of these he particularly recommended the instruments of Riva Rocci, Janeway, and Erlanger. These may all be employed so as to give both the systolic and the diastolic pressures. The diastolic pressure is especially well shown by Erlanger's apparatus. He gave as normal for young adults, a systolic pressure of from 90 to 140 millimeters of mercury, and a diastolic pressure of from 60 to 110. After middle life there is a steady rise.

He discussed briefly the changes in blood pressure at different times of the day, and the influence of posture and occupation. He drew special attention to the marked rise accompanying strenous effort mental or physical. He advised the use of a chart for recording daily changes in blood pressure, and deplored the difficulty that is experienced in allotting to the heart and peripheral vessels their respective share in deviations from the normal pressure.

Sir William Broadbent who spoke next proved to be a more than worthy representative of the old school. He said that the results obtained by the examination of the pulse by a trained finger might be just as reliable as those obtained by complicated instruments. He described the characters of a normal pulse, and maintained that, when those are felt, we need not doubt that the circulation is being efficiently carried on without undue strain upon the heart. He emphasised the importance, however, of a careful examination of the heart to corroborate the results obtained by the examination of the pulse. At the same time he admitted that, in cases of high blood pressure, the immediate cause will usually be found in the increased resistance of the peripheral vessels brought about by faulty metabolism, or deficient elimination. He pointed out how, in getting at the essential cause of variations in blood

pressure, we must constantly bear in mind the conditions present in the tissues where a change in the relations between the blood and the tissue cells or an altered permeability of the capillary walls may be responsible for great alterations in the general blood pressure.

He then referred to the benefit to be derived from various therapeutic measures. After mentioning the temporary benefit to be derived from the nitrites, he advocated more radical methods of treatment. Among these he favoured limitation of diet, copious draughts of water, Turkish and other baths, exercise, and mineral waters. In closing he bore testimony to the great benefit he had seen from the administration of mercurials.

Professor T. Clifford Allbutt discussed the relations between arterio-sclerosis and blood pressure. He divided arterio sclerosis into three forms. 1. The toxic class. 2. The hyperpietic. 3. The involutionary. The toxic class is caused especially by poisons introduced from without, such as typhoid, influenza, diphtheria, scarlatina and especially syphilis, very similar effects are produced by diabetes, and some forms of gouty disease. Lead poisoning in some ways acts like the poisons mentioned above but it also acts indirectly by raising blood-pressure, and thus represents a transition from the toxic to the next or hyperpietic form.

The second, or hyperpietic, form of arterio scleosis is that secondary to excessive arterial blood pressure. It is to be ascribed to the influence of poisons generated within the body by some variety of faulty metabolism. Among the diseases which are accompanied by such a faulty metabolism are various forms of renal disease, and gout, but there are other varieties which are not so well recognised. The connexion between high blood pressure and arterio-sclerosis is not as close as many believe, for either condition may exist for a long time without the other.

The third, or involutionary, form of arterio sclerosis is that incident to the changes of advancing age. In the hyperpietic form we have often much less deformity of the vessels than in the involutionary but the former is the more dangerous of the two. In the hyperpietic form the heart struggles long, and manfully, to overtake its increased work, but at last breaks down more or less suddenly under the strain, and the end is not long delayed. In the involutionary form the work of the heart is not necessarily much increased. If it gives way it is from "intrinsic decay" but the end more frequently results from the giving way of an artery in the brain or elsewhere. In the toxic class of arterio-sclerosis the state of the heart varies, but in too many cases it undergoes concurrent deterioration.

Dr. James Mackenzie enumerated the various properties of heart muscle, contractility, stimulus production, conductivity, excitability and

tonicity. He said that it was a common error to look upon failure of tonicity or dilatation, as the essential sign of heart failure, but he maintained that some of the other functions often showed signs of failure first, notably the contractility. He pointed out the signs of failure of contractility, irregularity in the size of the pulse waves, and pulsus *alternans*, and showed a number of tracings illustrating these conditions. He also showed how these signs of failing contractility often disappear when means are taken to lower the blood pressure, and give the heart a chance to recover itself.

Dr. John Lindsay Steven expressed the view that arterio-sclerosis and high blood pressure are not produced the one by the other, but are often both dependant on the same cause, namely toxic substances circulating in the blood.

Professor McPhedran bore testimony to the value of estimation of the blood pressure by the use of instruments of precision, and said, by their means, it was possible to estimate the action of the nitrites which showed how far the musculature of the vessels was still active.

Prof. G. W. McCaskey emphasised the great importance of the peripheral vessels in the production of variations in blood pressure, and spoke highly of the value of the nitrites as an aid to diagnosis, and as a successful method of treatment.

W. S. M.

MUNICH AS A PLACE FOR STUDY.

There is scarcely any city in Europe that has so many attractions for a visitor as Munich, situated as it is in the beautiful valley of the Isar, within sight of the snow-capped Bavarian Alps, and easy of access to numerous excursions. Art flourishes in Munich, as is shown by the picture galleries which contain some of the most celebrated paintings in Europe, and by the music, which is excellent, the opera being second only to that of Wien. The rate of living is moderate, the *pensions* numerous, and for the most part comfortable, the people, polite, sympathetic and—to use a favourite expression of their own—*gemütlich*. Lastly, for one who has yet to learn the language, Munich has exceptional advantages, because the English-speaking people are not so numerous that one cannot escape them—a statement which cannot be made of Berlin or Wien—hence one can, if one so desires, associate with a German-speaking "*Kreis*." Yet one is in a city of nearly 600,000 people, with good theatres, concerts, art galleries and other diversions for the home-sick "Ausländer."

As to Medicine: The "Königliche Ludwig-Maximilians Universität" has a medical faculty, of which it has a just right to feel proud,

and one that lives up to the high standards set by its former teachers—Pettenkofer, Ziemsen, etc. It includes at present such men as Voit in physiology; Rückert in anatomy; Bollinger and Dürck in pathology; Gruber in hygiene; Angerer in general surgery; Lange in orthopædics; Winckel in gynæcology and obstetrics; Bauer, Müller, and May, in medicine; and Kraepelin in psychiatry. For the "course-crazed" student Munich offers no facilities when compared with Berlin or Wien; but one can occupy his day very well with a schedule, which would include the majority of the above-mentioned teachers.

It is especially to those interested in Internal Medicine that Munich is to be highly recommended. For one who has just graduated from the medical school; but above all for one who, having served two or three years as an "interne" in a general hospital, wishes to specialize in internal medicine, Munich is the place *par excellence*. In the morning he can hear lectures on morbid anatomy by Bollinger, and Dürck, attend the theatre clinic of Friedrich Müller, work in the Poliklinik with May, and in the afternoon study psychiatry with Kraepelin.

A man, who has a moderately good training, and speaks and writes German, may procure a "Volontärship" in the wards of Professor Müller, the value of which can only be realized by a visit to the two-hundred-and-fifty publics beds which comprise the service of the "second Klinik." If one does not write and speak German sufficiently fluently, or does not wish to do "clinical routine," one can obtain work in the laboratory where, under the guidance of Professor Müller, and his assistants, an original "Arbeit" in chemistry, bacteriology or pathological-histology may be undertaken. Professor Müller has surrounded himself with an unusually capable group of assistants, each of whom is a specialist in some experimental line of work, and, therefore, best fitted to investigate certain series of cases. Naturally the room in the laboratory is limited, and a man desiring such work must satisfy professor Müller as to his qualifications, and undertake to stay a definite length of time—three to six months.

A word as to Müller as a teacher. He ranks among the first three men in clinical medicine in Germany, and is considered by many the best teacher. His lectures are simple, thorough, and painstaking. His cases are carefully prepared, and honestly presented, and a student, no matter how advanced, never leaves his lecture room without having acquired some new fact or thought, even though the text be a time-worn one, as typhoid or pneumonia. He is an inspiring teacher, a practical physician, and a scientist in the best sense of the term.

His great interest in the chemical side of medicine is especially stimulating, and his lectures on the Diseases of Metabolism are most instructive. By the teacher of clinical medicine his methods of teaching are well worth careful consideration and imitation, and a visit of a week or two in his Klinik will never be regretted.

C. P. H.

Reviews and Notices of Books.

STUDIES IN THE PSYCHOLOGY OF SEX—EROTIC SYMBOLISM, THE MECHANISM OF DETUMESENCE, THE PSYCHIC STATE OF PREGNANCY. By HAVELOCK ELLIS. Pages 285. Extra Cloth $2.00, net. Sold only by subscription to Physicians, Lawyers, and Scientists. F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia.

If there were anything particularly new in this book, it might appeal to "scientists." If there were anything freshly obscene, it would surely be welcomed by those degenerate individuals who enjoy a contemplation of the baser passions. Both classes will be disappointed in the present case. The parade of learning, the citation of cases from medical journals, the pseudo-scientific terminology, do not lift the subject into the cold atmosphere of science. One cannot refrain from wonder at an intelligence which gives itself up unreservedly to a consideration of such a theme, and one lays down the book with a fresh loathing of the Beast which yet lurks in humanity. Even obscenity may be handled artistically, but this author does the business coarsely, stupidly, without taste.

CONSUMPTION, ITS RELATION TO MAN AND HIS CIVILIZATION. ITS PREVENTION AND CURE. By John Bessner Huber, M.A., M.D. J. B. Lippincott, Philadelphia, and London.

This book is at once a work on medicine, a narrative of fact, and a philosophical treatise. Dr. Huber has viewed the subject broadly, and aims to give an exposition of the effect of consumption upon society as well as upon the individual. The book will therefore appeal to the educated layman who is interested in economics, as well as to the physician who devotes himself chiefly to the medical aspects of the disease. Much of the material which the book contains has appeared in medical journals, and in periodicals of a semi-scientific nature. It is here gathered together attractively in a form which makes it readily accessible. The book is a document of great sociological value.

Elements of Practical Medicine. By Alfred H. Carter, M.D., M.Sc. Ninth edition. H. K. Lewis, London, 1906.

"Carter's Medicine" which is redolent with memories of one's childhood continues to appear in new editions. The present is the ninth, and apparently the book is as well liked as ever by students. It has grown to 600 pages and yet retains its simplicity, and fulness of presentation, its easy narrative, and explicit statement of fact. A student who follows this guide will not be far astray in the end.

A Syllabus of Materia Medica. Compiled by Warren Coleman, M.D. Third Edition, New York, William Wood, 1906. Price $1.00.

"An experience of several years has convinced the author that Materia Medica is one of the most difficult subject [*sic*] to acquire in the field of medicine." This book does not improve matters. It is merely an index, of not so much value as a manufacturer's catalogue, because the prices of the drugs are not given.

The Practical Medicine Series. Edited by Gustave P. Head M.D. Vol. vii. Pediatrics. Edited by Isaac A. Abt, M.D. Orthopaedic Surgery. Edited by John Ridlon, M.D. and Gilbert L. Bailey, M.D. The Year Book Publishers, Chicago, 1906.

This book is a useful addition to the series of which we have spoken so often, and always with commendation.

The $CHCl_3$ Problem. By Richard Gill, B.Sc., M.B., London University, Chief Chloroformist to St. Bartholomew's Hospital. William Blackwood and Sons, Edinburgh and London, 1906.

This work, in two volumes, apparently has for its objects the revision of present day teaching with reference to the action of chloroform on the respiratory and circulatory functions of the body, and of the almost universally accepted theory of the cause of death by this anæsthetic. Vol. I. is devoted especially to a critical analysis of the "commonly received $CHCl_3$ hypothesis," and of "all the factors, extrinsic and intrinsic, which are concerned in the solution of the $CHCl_3$ problem." In this critical analysis the author seeks to destroy the commonly accepted hypothesis, and to build up one of his own based upon entirely new theories with reference to the action of chloroform on the respiratory centre and on the heart. In Vol. II the question of the physiological action of $CHCl_3$ is taken up, and towards the end of the volume a few pages are devoted to "experimental investigation." Little is advanced

in these few pages in support of the author's view upon the subject of the physiological action of $CHCl_3$. The work is interesting and worth the reading, though there is much useless repetition, and the arguments advanced savour too much of the chloroformist, and not enough of the physiologist or the pharmacologist.

Syllabus of Materia Medica. Compiled by Warren Coleman, M.D., Professor of Clinical Medicine and Instructor in Materia Medica and Therapeutics in Cornell University Medical College. Third edition. William Wood and Company, New York, 1906.

This little work is designed as an aid to memory, and as such should be of distinct value to the student. The general plan of the book is good with the exception of the section on the "classification of drugs on the basis of physiological action." The very common mistake is made of classifying a drug as a "hypnotic" or a "diuretic" when it produces these effects only when given in toxic doses or under abnormal conditions. The study of materia medica is essentially a question of memory, and while we cannot recommend to the student the use generally, of memory aids and get-wise-quick schemes, the use of a work of this kind is quite justificable.

Modern Ophthalmology. A Practical Treatise on the Anatomy, Physiology, and diseases of the Eye. By James Moores Ball, M.D., Professor of Ophthalmology in the St. Louis College of Physicians and Surgeons. With 417 illustrations in the text and numerous figures on 21 coloured plates, nearly all original. 820 pages. Imperial octavo. Price, extra cloth, $6.00 net; half-morocco, $8.50 net. F. A. Davis Co.

This admirable work is one of the best of the large modern text books on the subject. It is an exhaustive treatise. The descriptions are remarkably full, and clear, and it is indeed a difficult matter to find anything to criticise adversely. There is an absence of prolixity. There is hardly any ocular condition which has not been touched upon. The operations are clearly described, and profusely illustrated. The differential diagnosis of various ocular diseases is most exactly presented. The book is intended for students and general practitioners, but it is really more a valuable reference work. J. W. S.

A Treatise on the Motor Apparatus of the Eyes. By George T. Stevens, M.D., Ph.D. Illustrated with 184 engravings, some in colours. 496 pages, royal octavo. $4.50 net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

This is an exhaustive resume of the ocular deviations by an author who has already contributed greatly to our knowledge of these conditions.

The introduction of the work deals with the history of our knowledge of the various muscular anomalies of the eye. This is followed by a description of the anatomy of the extra-ocular muscles, which includes a very interesting section on the comparative anatomy of the eye muscles in fishes, reptiles, birds, and mammals.

The second part is a lucid disertation on the physiology of the eye movements in which the author's admirable style clearly shines out. In this section Dr. Stevens deals very fully in his own theories anent the anomalies of the motor apparatus of the eyes. These theories have been already described in his previous works which have been reviewed in this JOURNAL, but as in all writers with a special hobby, the author seems to carry his theories to extremes, and more especially does this show up in the relations which, he holds, these anomalies invariably have to nervous troubles generally. This was fully demonstrated a few years ago in the controversy raised in New York over this matter, when the Academy of Medicine instituted a series of investigations into the results obtained by partial tenotomy in cases of heterophoria. Whatever may be the final decision as to the advisability of the operations of partial tenotomy advised by Dr. Stevens, he can certainly be congratulated on his elucidation of an abstruse subject.

In part III of the work he deals in *extenso* with the theory of the declinations of the retinal meridians, and the possible corrections of any abnormal condition of it. But this requires further experience, before any definite conclusion can be arrived at. The book itself is an admirable specimen of the printer's craft. The illustrations are good and the typography clear.

J. W .S.

PREVALENT DISEASES OF THE EYE. A reference hand book, especially adapted to the needs of the general practitioner and the medical student. By SAMUEL THEOBALD, M.D. W. B. Saunders, Philadelphia. J. A. Carveth Co. Toronto.

"Prevalent Diseases of the Eye" is a title of a new reference handbook, written by Dr. Theobald, the talented professor of Ophthalmology in Johns Hopkins University. The opening chapters, and the methods of examining the eye, are delightfully clear, and the following ones on the diseases of the eye are admirable on account of their succinctness and lucidity.

The diseases of the lachrymal apparatus, one of the strong subjects of Dr. Theobald, are elaborately described, as also his methods of treatment of stricture by large probes. Many authorities are greatly at variance with Dr. Theobald in this method of treatment. The illustrations are

many, but the majority of the uncoloured ones are not original. The coloured ones, on the other hand, are original and very good.

J. W .S.

HANDBOOK OF GENITO-URINARY DISEASES. By DR. LEOPOLD CASPER, Berlin. Translated by Dr. Charles W. Bonney, Demonstrator in Anatomy, Jefferson Medical College, Philadelphia. P. Blakiston's Son & Co., Philadelphia.

A great number of medical men from this side of the water, who have followed Dr. Casper's clinics, will be pleased to see his teachings in a more or less permanent form, and made readily available in this translation. As to the translation itself we welcome a work which is expressed in decent English, and not in a hybrid of English words, and German structure. With the exception of a few grammatical errors, such as "different than," the translation is excellently well done. In the book itself coming as it does from a German source, there is a welcome lack of illustrations as compared with the extravagance of American publications. The dominant note of the book is the authority of a large personal experience which leans apparently rather to the practical and clinical side than to the pathological. At all events, it may be from lack of space, one misses the evidence of the intimate acquaintance with the pathological side of the subject, such as is usually so evident in German works. Such pathology as is given, though somewhat meagre is sound. One notes the Continental use of the term "carcinoma" to include epithelioma. The translator might have altered this without harm, and made things clearer to English readers. It would be impossible to pass in review all the various chapters, and we must content ourselves with calling attention to a few points taken at random. Posterior urethroscopy is condemned as useless, inasmuch as the necessary distortion of the parts may simulate disease in a healthy urethra. The technique of the differentiation between the tubercle and smegma bacilli would be considered subject to criticism by many workers as being inaccurate. Careful work goes against Casper's idea that the use of absolute alcohol is useless. The chapter upon hypertrophy of the prostate represents rather the continental view which is comparatively conservative than the American view. Fortunately the translator has been allowed to make large additions to this chapter, additions which represent, more or less adequately, the general procedure and the good results of American work. Young's technique of perineal prostectomy is reproduced perhaps with too great brevity, and also the same author's operation for the radical cure of

prostatic cancer. One expected something fuller upon cystoscopic ureteral catheterization, and the functional diagnosis of renal sufficiency from a man of Casper's standing. Apparently he has preferred to leave these things to be read in his other publications. The translator has made numerous small additions throughout the work. Many of them it must be said are necessary; all of them worth while. As a whole the book is highly to be recommended.

E. W. A.

THE PRACTICE OF GYNAECOLOGY, in original contributions by American authors. Edited by J. WESLEY BOVÉE, M.D., Professor of Gynæcology, George Washington University, Washington, D.C. Lea Brothers & Co., Philadelphia and New York, 1906.

This is a book belonging to the so-called systems in which the editor has associated with him six other writers, each one being a specialist in gynæcology, and a teacher of the subject in some medical school. There can be no doubt that this method of book making has many advantages, while perhaps open to some objections. Besides the distinguished editing professor each of the other contributors has achieved more or less distinction in his speciality. The list includes such well known names as J. Riddle Goffe, Thomas J. Watkins and X. O. Werder. In his preface the editor states that the book in "its scope is intentionally made broader than the technical definition of gynæcology." So that it includes a consideration of the diseases and injuries of the bladder, urethera, ureters, and rectum. This is not only an advantage and a necessity to the specialist, but also to the general practitioner. A considerable, and in many respects important part of the work in this volume of over eight hundred pages has been done by the editor. The articles he has chosen are those on developmental anomalies of the female generative organs; sterility; diseases of the rectum and anus; and the abnormal surgical conditions of the whole urinary tract from the kidney to the urethera both inclusive.

In the article on menstruation, Dr. Riddle Goffe insists on the importance of the young girl being sufficiently early instructed regarding this function, what it means, and the care necessary to avoid arrest or disorder. It is, or ought to be, part of the function of the family doctor to impress upon the mothers, or guardians of young girls, the importance of this duty. The author quotes with approval Lawson Tait's suggestion that, from analogy of the fertilization of flowers, the idea of reproduction may be gained in the purest and simplest form.

The articles by Riddle Goffe are those on Displacements of the Uterus, The Vaginal Method of Operating, and the After Treatment

and Complications of Abdominal Operations. He is especially eloquent on the advantages of the vaginal avenue of approach for many intra-pelvic conditions which require peritoneal section. Dr. Riddle Goffe, by his enthusiastic and persistent advocacy of vaginal section, has doubtless converted many of his countrymen from abdominal section. In some of the conditions to which he applies it most operators will, however, we believe continue to hold that the old is a more excellent way, and will not be prepared to admit all the advantages claimed for vaginal section by Goffe and others. Superior experience of a particular method of operating will usually result in its being preferred.

G. Brown Miller writes the articles on inflammation of the uterus, lacerations of the cervex, subinvolution of the uterus, inversion of the uterus, and the fibromyomata, and malignant tumours of the uterus. To X. O. Werder falls the technique of abdominal operations, and extra-uterine pregnancy. The other subjects are treated by Brown Miller, Schenck, and Watkins.

The various operations for urinary and fæcal fistulæ are described. So also those for prolapsus of the uterus and vagina, and for lacerations of the perineum. Among the operations for displacement of the uterus shortening of the utero-sacral ligaments is included, and described. We believe that its applicability for this condition is very limited, and in many cases for most operators it will be found difficult of performance. On the other hand, the Lefort operation, as an adjunct to other procedures, or alone, in selected cases, which we have found most valuable, is not mentioned. Suitably done it need not prevent sexual relations or, as in cases on record, prevent successful pregnancy and parturition. In many respects this is an admirable work, and a valuable addition to the literature of gynæcology.

Photoscopy. By Mark D. Stevenson, M.D., Akron, Ohio. Octavo of 126 pages, illustrated. Philadelphia and London, W. B. Saunders Company, 1906. Cloth, $1.25 net. Canadian agents, J. A. Carveth & Co., Toronto, Ont.

This work contains a short description of the principles of Photoscopy. All reference to advanced mathematics is carefully avoided, and clinical facts are well brought out. The descriptions are sometimes a little confused, and the writing is not always of the very best. As a practical guide, however, it is to be recommended to any one proposing to undertake the treatment of refractive errors.

J. W. S.

Race Culture; or, Race Suicide? By Dr. Robert R. Rentoul, Liverpool, Walter Scott Publishing Co., Ltd., London and New York.

The author states that the work is "a plea for the unborn," and the giving of more attention to the begetting of a healthy race. It is written for medical and non-medical thinkers; and the causes of degeneracy are discussed in twenty-one chapters, while suggestions are made for the prevention of an increase of degeneracy.

Saunders' Pocket Medical Formulary. By William M. Powell, M.D. Eighth Edition, Adapted to the new (1905) Pharmacopeia. Philadelphia and London: W. B. Saunders Company, 1906. In flexible morocco, with side index, wallet and flap. $1.75 net.

The above heading sets forth the objects of this book. It is well known by reason of the seven editions which have preceeded the present one. A book of this kind is of great value to a physician; and there is none better than this one.

The Medical Record Visiting List or Physician's Diary for 1907. New revised edition. William Wood & Company, New York.

Physicians who have used this book in the past will require another of the same kind for the coming year. It is all which one could desire for recording the details of the daily work. Messrs. Lea, Brothers & Co., and Messrs. Blakiston's, have also favoured us with copies of their "Visiting Lists."

The American Illustrated Dictionary. By W. A. Newman Dorland, M.D. Fourth Revised Edition. Octavo, 836 pages, 293 illustrations, 119 in colours. Philadelphia and London, W. B. Saunders Company, 1906. Flexible morocco, $4.50 net; thumb indexed, $5.00 net. J. A. Carveth & Co., Toronto.

It is just three years since, in December 1903, we had occasion to mention the appearance of the third edition of Dorland's dictionary We said that it fulfilled all the conditions demanded in a book of reference; the definitions close and accurate and the words easily found. After using this dictionary for three years we are not disposed to think that it was praised too highly. The quick issue of the fourth edition would seem to be proof that a large number of persons entertains the same opinion.

Obstetrics for Nurses. By Joseph B. DeLee, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago. Second revised edition. 510 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1906. Cloth, $2.50 net. J. A. Carveth & Co., Toronto.

The "literature" which is available for nurses is now of considerable bulk. We cannot help wondering how many nurses read it; and, of those industrious persons, how many profit by what they read. It is not our conception of the duty of a nurse that she should master a book upon Obsterics of 500 pages. Even if the feat were possible in view of her lack of preliminary training in anatomy and physiology, we do not think it either necessary or desirable. If the author puts this book forward as one suitable for the nursing "profession," we think that he is lacking in good judgement.

Diet in Health and Disease. By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second revised edition. Octavo 728 pages. Philadelphia and London, W. B. Saunders Company, 1906. Cloth, $4.00 net; half morocco, $5.00 net. Canadian agents, J. A. Carveth & Co.

The first edition of this book was mentioned in these pages in February, 1905, less than two years ago. The changes in the present edition are not numerous. The section upon salts has been re-written, and the recent work by Chittenden, Klemperer and Prochownick, is noted. No mention appears of Pawlow's investigation of the digestive juices. Many new recipes and diet lists are added. Probably no other book contains so much information upon the subject of diet in disease.

A Treatise on Surgery. By George R. Fowler, M.D. Two imperial octaves of 725 pages each, with 888 text illustrations and four coloured plates, all original. Philadelphia and London: W. B. Sauders Co., 1906; Canadian agents: J. A. Carveth & Co., Limited, Toronto. Per set, cloth, $15.00; half morocco, $19.00 net.

This second volume deals with the surgery of all regions of the body, save those of the head, neck, and thorax, which were described in the first, and is fully up to the standard of its predecessor. One is impressed by the wide knowledge possessed by the author, by the

lucid and concise presentation of the various subjects, and by the excellence and profusions of the illustrations. The late Dr. Fowler was among the leading American surgeons of the day, and his work justly deserves a high rank in surgical literature. It is to be deeply regretted that he was not permitted the satisfaction of seeing his book in print. Reviewing the various sections in detail, we find the treatment of fracture of the dorsal and lumbar vertebræ to be conservative, if the cord be injured and symptoms persist operation is advised, but in extensive injury or complete division of the cord operative interference is not likely to be attended with regeneration, however promptly it may be sutured. Potts' disease scarcely receives the consideration it merits. The surgery of the abdominal and pelvic regions is a very admirable section, and particularly the articles on the gall-bladder and bile ducts, the appendix, hernia, and the male genital organs. The symptoms of perforative typhoid are not clearly expressed, nor are the favourable results sufficiently brought out. He advises excision of the ulcer not simple invagination. Hæmorrhage from gastric ulcer, its treatment and present good results are not more than touched upon. The classification of appendicitis is made from a clinical rather than a pathological basis. Operation should not be delayed longer than 24 hours in progressive cases, and in many not that long. The kidney receives a fair amount of consideration, but the technique of cystoscopy and the various procedures for determining renal efficiency are not mentioned. Urethral strictures requiring to be cut should be subjected to external rather than internal urethrotomy. Conservatism is taught in the treatment of enlarged prostate. The perineal route is preferred for the radical operation. The female pelvic organs are considered as adequately as a book on general surgery permits. The surgery of the extremities is clearly expressed, but fracture of the humerus and femur have not been given the attention they merit.

W. L. B.

The Technique of Operations Upon the Intestines and Stomach. By Alfred H. Gould, M.D., of Boston, Mass. Octova volume, containing 190 beautiful original illustrations, some of them in colours. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $5.00 net; Half Morocco, $6.00 net. J. A. Carveth & Co., Toronto.

This beautiful book will be of great assistance to those wishing to make themselves familiar with up-to-date intestinal and stomach surgery. It is, as the author states, the result of three years' research,

and in it are collected nearly all the standard operations upon the stomach and intestines. The technique of the operations is fully described, and everything is given necessary to the thorough understanding of the various stages of the operations selected as the best. Too much praise cannot be given to the magnificent illustrations; they are so fine and so clear that no mistake could possibly be made as to their meaning. These illustrations with the accompanying text are all that is required to enable a person with but slight operative experience to become thoroughly familiar with stomach and intestinal surgery. The first chapter on repair of intestinal wounds, well illustrated, is a new feature in such text-books as the one under review. This book can be recommended to all interested in abdominal surgery. Dr. Gould is to be congratulated on having produced such a splendid work.

Atlas and Text-Book of Human Anatomy. Volume I. By Professor J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Michigan, Ann Arbor. Quarto volume of 258 pages, containing 320 illustrations, mostly all in colours. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $6.00 net; Half Morocco, $7.00 net. J. A. Carveth & Co., Toronto.

This, the first volume of Sobotta's anatomy, is a distinct addition to our atlases, and text-books, of anatomy. The translation seems well done, and the illustrations which are in a separate volume in the original are here united in one volume, a great improvement, in our opinion. The illustrations are beautifully coloured, and the best we have ever seen. They are so good that every practitioner who cannot consult the dissecting room at will should have a copy. In adapting the atlas for English readers the only changes have been in the nomenclature and the combination of atlas and text. The nomenclature employed is that proposed by the Basel Committee. In the section of myology, Latin terms have been retained throughout. The German author states that the atlas was prepared for the student as an aid in the dissecting room; but it is far too fine for that. This is the first anatomical atlas in which multi-colour lithography has been employed. All the illustrations were first photographed from specimens, and the majority of drawings were made for the photographs. Many of the illustrations are produced by the half-tone method, and made clearer by the use of a number of colours. We can recommend this artistic work to all who wish to renew their acquaintance with anatomy.

Medical News.

ROYAL VICTORIA HOSPITAL.

Monthly report for November: Patients admitted, 292; patients discharged, 252; patients died, 14. Medical, 84; surgical, 124; ophthalmological, 19; gynæcological, 35; laryngological, 30. Out-Door Department: Medical, 823; surgical, 740; eye and ear, 355; diseases of women, 93; nose and throat, 514. Total, 2525. Ambulance calls, 68.

ALEXANDRA HOSPITAL.

Admissions, discharges and deaths at the Alexandra Hospital from the date of opening to November 30th, 1906, were: Admitted: diphtheria, 95; scarlet fever, 46; measles, 18; erysipelas, 1; no disease, 2. Discharged: Diphtheria, 74; scarlet fever, 27; measles, 16; erysipelas, 0; no disease, 2. Died: Diphtheria, 7; scarlet fever, 0; measles, 1; erysipelas, 1; no disease, 0. Total admitted, 162. Total discharged, 119. Total died, 9.

MONTREAL GENERAL HOSPITAL.

During the month of November 280 patients were admitted to the Montreal General Hospital, and 246 were discharged. There were 23 deaths, 10 of which occurred within three days of admission. The average daily sick in the hospital was 200, and the highest number on any one day was 212. Out-door consultations numbered 3,792. The ambulance made 138 runs. The average number of visitors at the hospital on visiting days was 328. During the 16 years the training school has been in existence 270 graduates have passed.

For the Medical Council of Ontario the following persons were elected by acclamation to represent the territorial divisions named: Division 1, Dr. J. L. Bray, Chatham; 3, Dr. J. MacArthur, London; 4, Dr. J. Robertson, Stratford; 6, Dr. James Henry, Orangeville; 7, Dr. P. Stuart, Milton; 8, Dr. S. H. Glasgow, Welland; 10, Dr. E. E. King, Toronto; 12, Dr. H. Bascomb, Uxbridge; 13, Dr. S. C. Hillier, Bowmanville; 14, Dr. A. E. MacColl, Belleville; 15, Dr. W. Spankie, Wolf Island; 16, Dr. J. Lane, Mallorytown; 17, Dr. M. O. Klotz, Ottawa.

The contested elections resulted as follows: Dr. J. S. Hart, Toronto; Dr. Henderson, Strathroy; Dr. Luton, St. Thomas; Dr. E. A. P. Hardy, Dr. E. T. Adams, and Dr. C. Jarvis, Toronto.

Dr. C. S. Parke died in Quebec on 29th November, 1906, in the 63rd year of his age. The immediate cause of his death was inflammatory rheumatism. His only son is Dr. G. H. Parke, also of Quebec. Dr. Parke graduated from McGill in 1866, and subsequently went to Edinburgh for study. During his career he was consulting physician to the Jeffrey Hale Hospital, and attending physician to the Male Orphan and Finlay Asylum. He was a member of the select vestry for many years of the English Cathedral, and filled the offices of president of the Irish Protestant Benevolent Society, president of the Quebec Tandem Club, president of the Victoria Curling Rink, and president of the Quebec Turf Club. He received the Government medal and Fenian Raid medal.

The trustees of the Toronto Free Hospital for consumptives have awarded contracts aggregating $27,000 for the erection of a new sanatorium near Weston. Ten thousand dollars of the amount required has been provided by Mr. Robert Mulholland for the erection of a special cottage, and another $10,000 by Mr. H. C. Hammond for a second cottage. This sanatorium is intended to supplement, as an institution for advanced cases, the Muskoka Cottage Sanatorium at Gravenhurst, which is for incipient cases.

The committee of management of the Western Hospital has issued an appeal to the public, signed by Mr. Charles F. Smith, president, and Dr. T. G. Ross, hon. secretary, for contributions in money or gifts. To enable the new hospital building, costing $60,000, to be completed, a generous response is essential. It is the ambition of the committee to open the structure free of debt, but only a third of the amount has already been subscribed.

The Ottawa city council has been advised by Dr. Hodgetts, of the Ontario Board of Health, that, if the city will erect a sanitorium for consumptives in the vicinity of Ottawa, the Government will give a grant of $4,000 towards the building fund, and contribute $1.50 per week per patient towards maintenance. The city council has approved of the proposal.

The newly elected officers of the Thunder Bay Medical Association are: Hon. President, Dr. T. S. T. Smellie; President, Dr. C. J. H. Chipman; vice-president, Dr. H. E. Paul; secretary, Dr. J. D. Chis-

holm; treasurer, Dr. J. A. Crozier; Executive, Drs. J. M. McGrady and G. E. McCartney.

The London Medical Society held its annual meeting on December 11th, when the following officers were elected: President, Dr. E. Seaborne; Vice-President, Dr. W. J. Stevenson; Secretary-Treasurer, Dr. U. E. Bateson. The retiring president, Dr. Angus Graham, delivered the address.

The Hamilton Medical Association held its annual meeting on December 7th, and elected the following officers: Dr. Ingersoll Olmsted, president; Dr. Storms, vice-president; Dr. Davey, corresponding secretary; Dr. Hess, recording secretary; Dr. McNichol, treasurer.

At a meeting of the Regina Hospital Directors it was decided to approach the city council with a view to having a by-law presented to the rate-payers, authorizing the sum of $100,000 debentures for the purpose of erecting a fully-equipped municipal hospital.

Dr. Walter Duesler Clement died in Toronto, on December 11th, 1906, in the 76th year of his age. He had practised medicine in Oxford county for forty years.

At the annual meeting of the St. Catherines General and Marine Hospital Association held 27th November, 1906, arrangements were undertaken for a new and modern hospital building of sixty beds.

The French Government has conferred upon Dr. Arthur Rousseau, of Montreal, Dr. C. S. Grondin and Dr. Arthur Simard, of Quebec, the honour of electing them Officers of the Academy.

Four hundred and thirty-three new cases of contagious diseases were reported to the Hygiene Department during November, bringing the total number of cases registered during the year up to 4,099.

Early in May the construction work on the new Royal Columbian hospital at New Westminster will be commenced. The new building will cost about $50,000.

The building and site of the Montreal Dispensary has been sold to the Canadian Pacific Railway. The institution will go into new quarters next May at the north-west corner of St. Antoine and Inspector.

A site has been secured in Edmonton for the erection of the new hospital. The institution will cost $75,000.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

J. W. Struthers, M.B., F.R.C.S., Ed. "Spinal Anæsthesia; Its advantages and Disadvantages." *Edinburgh Med. Jour.*, November, 1906.

Sufficient evidence has accumulated during the last two years to allow of a definite opinion being formed of the value of spinal anæsthesia in surgical work. Cocaine has been abandoned for some time and its place been taken by stovaine, tropa-cocaine, and novocaine. Although various minor differences in the technique practised by different surgeons exist, there is an absence of real evidence of the superiority of one method over others, the main indications being to introduce 4 to 8 cgrms. of stovaine or tropa-cocaine, dissolved in an unirritating solvent directly into the subarachnoid space just below the spinal cord, with the most rigid precautions against sepsis. A complete sensory and motor paralysis is obtained, beginning with the sacral and involving the lumbar, and with large doses the lower dorsal, nerve areas, which lasts from an hour to two hours, and attended in about 60 to 90 per cent. of the cases by no complications nor followed by disagreeable after effects. But against these advantages several deaths have been reported, wholly or partly attributable to this method. Four cases of complete temporary paralysis of the respiratory muscles are reported following the use of stovaine. Every writer, who has had much experience of spinal anæsthesia, refers to cases of severe collapse occurring occasionally, while cases of slight collapse are apparently

frequent. Sickness, vomiting, and involuntary defaecation are of frequent occurrence, vomiting being especially apt to occur in abdominal operations. Imperfect anæsthesia, even in the most experienced hands, occurs in varying proportions, between 4 and 10 per cent. Headache is present in about 5 per cent., and is frequently severe and persistent, and difficult to relieve. In this respect the withdrawal of 5 to 10 c.c. of cerebro-spinal fluid is the most efficacious treatment, but often fails to relieve. The degree and duration of the anæsthesia cannot by any means known as yet be accurately controlled. The fact of the patient being conscious during a major operation is an insuperable objection. The mortality is little if at all below that attending chloroform and much greater than under ether. Unless means are discovered to materially lessen its dangers and to regulate more accurately its duration and extent, it seems doubtful whether spinal anæsthesia will retain the popularity which it has in some quarters attained.

John G. Sheldon, M.D. "A further report on a case of Cirrhosis of the Stomach." *Annals of Surgery,* November, 1906.

This case was operated upon three and one-half years ago and is now well and attending his occupation regularly. At the operation, the stomach was found to be very small, its walls markedly thickened and indurated, but the organ was not deformed. Its cut surface appeared fibrous, and the mucosa, as far as could be determine, was smooth and atrophic. A gastro-enterostomy was done, the case being thought to be one of benign diffuse cirrhosis of the stomach. This condition, though rare, is now recognized. It is not associated with cancer, and may be of such severity as to cause death without cancerous involvement being present.

Franz Forek, A.M., M.D. "The Treatment of Diffuse Suppurative Peritonitis following Appendicitis." *Medical Record,* December 1, 1906.

An extensive incision is made generally in the middle line of the abdomen. This incision extends from the umbilicus to the pubes, and in some cases as high as the ensiform cartilage. The pus is allowed to flow out, and what remains is gently dipped out. Adhesions between coils are separated, as his experience has shown many cases where there were abscesses so walled off, which would be dangerous to leave. The entire abdominal cavity is flushed out by pouring large quantities of saline solution into it, the coils of intestine being held aside and the various spaces thoroughly cleaned. The appendix is removed, and the

the abdomen closed without drainage. He does not think Fowler's position effective in this class of cases, and fears the dangers of syncope. His after treatment consists in stimulation by strychnine, digitalis camphor and occasionally caffeine and nitroglycerine, combined with saline infusions. In cases of severe shock adrenalin is added and the foot of the bed raised. Vomiting is treated by lavage. Sufficient morphine is given to make the patient fairly comfortable. He is against early opening of the bowels, prefers to relieve flatus by the rectal tube, and waits until the fifth or sixth day before giving a purgative enema. Twenty-one cases have been operated upon with a mortality of 14 per cent.

W. L. B

MEDICINE.

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

WEICHARDT AND PILTZ. "The Actiology of Eclampsia." *Deutsche Medizinische Wochenschrift,* Nov. 1906.

These authors state that a study of the mechanism of production of eclampsia and hay fever leads to the conclusion that each disease is the result of the formation of specific poisons from albumins, in the one case derived from placental albumin and in the other from the albumin of pollen. The serum obtained by injecting into rabbits placental cells or pollen grains, in each instance is not antitoxic but cytolytic, and cytolysins are formed which can break up homologous albumin molecules and liberate toxic groups or so-called endotoxins. It is Weichardt's belief that eclampsia is the result of the formation in the body of toxic substances resulting from the cytolysis of placental cells that enter the circulation, it being assumed that in these cases there is a deficiency in antiendotoxins or inhibiting bodies. By injecting into rabbits a specially prepared trituration of placental tissue the authors were able to satisfy themselves of the existence of such an endotoxin that appeared to present toxic components of two different types. The first of these was a hydrogel forming body which is therefore active in causing coagulation of blood, whereas the other more deleterious component has a specific affinity for the respiratory center, and when injected into animals promptly causes death through failure of this function. The authors also speak of their attempts to produce an artificial inhibitory body to be used as a prophylatic, in which they have been partially successful, though it does not appear that there is any immediate possibility of its being practically useful.—*New York Medical Record.*

J. E. Dutton and J. L. Todd. *Memoir XX., Liverpool School of Tropical Medicine,* June, 1906.

This brochure of 72 pages is taken up for the most part by observations upon "The Prophylaxis of Malaria in the principal posts of the Congo Free State," followed by a description of the "Animal Reactions of the Spirochæta of African 'Tick Fever,'" and "The Specific nature of the Spirochæta of African 'Tick Fever.'" The first named article, written in French, deals at the outset with the fact that, since malaria, yellow fever and filariasis are carried by mosquitoes, all mosquitoes are therefore dangerous, and their destruction must be attempted. Figures are adduced to show that this is by no means impossible, and that careful prophylaxis has practically stamped out of existence, in certain places, what were previously dangerous maladies. Following some general remarks on the biology and habits of mosquitoes, is a short recital of the methods taken to destroy them, or to keep free from their entry, sources of drinking water. The kerosening of pools and drainage of marsh land are also alluded to, although these are rather questions that affect a community than an individual. For the individual of a white race, the habit of sleeping beneath a netting is obligatory, and the separation of his living quarters from the immediate vicinity of the natives highly essential. The authors then deal with the municipal laws that seem to be necessary in the struggle against infection, and outline the medical service as it now exists in the Congo Free State, particularizing the important stations by a report on each of five of the most important posts in the country; these reports, of local interest, as they are, yet indicate a very careful observation of the prevalent conditions, and careful suggestion as to the means of betterment of each. Maps from the hands of the authors, assist the understanding of these local conditions.

A. Breinl and A. Kinghorn. "Observations on the Animal Reaction of the Spirochæta of the African Tick Fever. (Published in *The Lancet,* March 10, 1906).

This brief report shows that the authors worked with the strain of Spirochæta discovered by Dutton and Todd, in human tick-fever, which was described in Memoir XVII, previously reviewed in these columns. They were able to infect, in addition to monkeys, the horse, dog, rabbit, guinea-pig, rat and mouse. Spirochæta obermeieri has not, as yet, been able to attack any animal save man and the monkey, so that the authors suppose that spirochæta duttoni is evidently a different organism.

A. Breinl. "On the Specific Nature of the Spirochæta of the African Tick Fever. (Published in *The Lancet*, June 16, 1906).

Breinl made a large series of inoculations with spirochæta obermeieri and with the spirochæta of African Tick Fever; after recovery from a first infection, the animals were re-infected, and the result was that each conferred a good immunity against its own re-infections but not against re-infection of the other. This, coupled with the observations mentioned in the last reviewed paper, lead to the supposition that the two species are quite distinct. The African species has been named spirochæta duttoni, to honour the memory of the late Dr. Dutton.

A. G. Bennett.. "Physical Methods of Treating Heart Disease; the Nauheim Bath." *Practitioner*, October, 1906.

The author redirects attention to the Nauheim bath, and to the virtues that it has, even if uncombined with massage or Schott movements. He says its most useful place is in dilatations after fevers, or cases of high arterial tension in Bright's disease, where there is not albuminuria to any marked extent; if the albuminuria be the result of cardiac inefficiency, Bennett does not consider the baths as by any means contra-indicated. The general enlargement that is known as the result of prolonged alcoholism, he considers as amenable to bath treatment. As to the question, how do the baths act? there are many offered solutions. Bennett considers that actual absorption of the carbon dioxide and other constituents must occur; some say the result is brought about by the irritation of nerve endings, which act reflexly on the nerves of the heart: considering how much blood the peripheral vessels can contain, it is easy to imagine that, with the peripheral blood greatly increased, the heart gains tone and command over its blood, even though seriously dilated. Baruch considers that carbon dioxide stimulates muscle fibre and that the main factor in the effect of the baths is that they increase the power of the rhythmical contractions of the peripheral arteries. Heitz has pointed out a great betterment in sensation, and the sense of position of limbs after the baths, and speaks of a tonic effect on the myelin sheaths of nerves.

Bennett recapitulates some of the cautions, such as the use of porcelain, not metal baths; the increase of the amount of gas the lower the temperature is; and finally, the stated contra-indications, with some of which he does not agree. If albuminuria be due to heart inefficiency, as stated above, the author considers it no contra-indication; if eczema exists, cover it by vaseline or collodion and proceed as if it did not exist: œdema is not necessarily a contra-indication, although true

angina pectoris and aneurysm are. In this connexion the author brings forward what is evidently with him a cherished idea, which may very likely be true, viz., that bather's cramp is really angina pectoris.

In his summary, the author looks to find, by the use of the baths, a capillary dilatation with relief to the ventricular circulation, and thereby better ventricular emptying and slowing of the heart rate, increased tone and volume of the distal capillary circulation, and a reflex effect on the cardiac ganglia. The floating up of the viscera may be of use in relieving the large venous trunks which are ordinarily pressed upon by these viscera, and the action of the skin and of the kidneys is certainly stimulated.

Heitz. "Hypertension and Carbogaseous Baths." *Revue de Médecine,* 10th June, 1906.

This author gives an impression of being a little too enthusiastic over the good results of baths of this nature, but adds much interesting material relative to cases that have been observed with evident care. The cases have been treated at Royat, and only those are dealt with, in which the baths are the sole form of treatment. The author measures his results always by means of instruments, especially those of Potain and of Goertner, and prefaces his information by the statement that it is only permanent, chronic hypertension that lends itself readily to amelioration. In transient or paroxysmal hypertensions, such as those of eclampsia, lead colic, or scarlatinal nephritis, no good is to be hoped.

Heitz is of the opinion that the deposit of gaseous bubbles on the skin is of use in exciting the terminations of the sensory nerves, that the baths excite great vaso-dilation of the superficial vessels, as shown by the redness of the skin, that the heart is slowed, that excitation of the abdominal vaso-constrictors occurs; and he observes continually that the sphygmanometer shows a lowering of the blood pressure. Diuresis is increased as is uric acid elimination, and leucocytosis, especially of the eosinophiles, produced. The lowered blood pressure is not transitory, but lasts for a long time—often months. In 1904, this author reported favourable results in 60 per cent. of his cases, and now thinks he may venture to say in 75 to 80 per cent. The refractory cases are those of moderate hypertension. The disappearance of local pallor and cold is notable, and at times a real enlarging of the radial artery may be felt.

In the particularization of cases, cardiac neuroses and paroxysmal tachycardiac have been much benefited, though wisely remarks that

the baths are only good adjuncts to psychotherapy. In many myocardial lesions, marked changes in murmurs have been produced, and in four cited anginal cases, the results in the disappearance of attacks are wonderfully good. Diminution of albumen in cases of renal insufficiency, and the lessening of insomnia and vertigo have also been very encouraging. Without particularizing further his cases, which partake of many different forms of hypertension, from that of neurasthenia to that of gout, his results are very good.

As contra-indications, aneurysm stands first; the imminence of a gouty attack is a warning to desist, and a quick drop of pressure in a sclerotic means so great cardiac effect as to be dangerous. Pulmonary œdema, much cardiac asthma, and arteritis of the coronaries or great myocardial change all counsel care in administration; if there be much albumen and many casts, or if renal insufficiency be indicated by poor elimination of methylene blue, there is no use in attempting the treatment, for in such cases the result may be a rise of blood pressure. Careful observation and systematic use of the blood-pressure instrument are absolutely essential.

J. McC.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

Macfadyen. "An Antityphoid Serum Obtained from Goats. *Centralblt. f. Bact.*, 1906. XLI. Heft. 2.

The author prepared the anti-typhoid serum by immunizing goats with the juice of the typhoid bacilli. This cell juice he prepared by growing the organism on large surfaces of agar, and after incubating 18 hours, collecting the virulent bacilli. The bacilli were frozen with liquid air and ground to a fine powder, from which an emulsion was made. In this way the liberated endotoxins were dissolved and obtained in concentrated solutions. Such endotoxin solutions were highly toxic for animals, but it was found that an anti-substance could be produced in administering it in small doses. From goats a potent anti-toxic serum was obtained. The serum is not truly antitoxic, as the term is used for anti-diphtheritic serum, but rather anti-endotoxic,—for it not only contains antibodies to the endotoxin, but also possesses agglutinating and bacteriolytic properties.

Jagic. "Cirrhosis of the Liver." *Wiener Klin. Wochensch.* 1906. XIX p. 1058.

Though cirrhosis of the liver has for many years been ascribed to alcohol, the experimental results obtained by alcohol have not entirely

borne this out. Alcohol given by the stomach to the lower animals leads to a severe gastritis but no liver cirrhosis. Mertens has claimed positive results by administering alcohol by inhalation. The general contention held at present is that alcohol predisposes to liver cirrhosis, but that it does not stand alone in this. Weigert advanced the sweeping theory that in each case of liver cirrhosis, there was a preceding stage of liver-cell destruction, and that the various etiological factors which had been brought forward, were the agents leading to this destruction. In support of this are the experiments of Deutsch who was able to produce localized necrosis in the liver by injecting the animal with hepatic immune serum. Such hepatic immune serum was obtained by treating one animal, by intraperitoneal inoculations, with the ground-up liver substance of another animal. After some weeks of treatment, the serum from the inoculated animal, is found to be toxic and destructive of liver tissue in the other species of animal. Although several have claimed that the necrotic areas in the liver so obtained, are later filled in with connective tissue, Jagic never found this in his animals. Other experimenters reported the production of cirrhosis by bacterial inoculation, and many scattered reports exist of the finding of fibrosis of the liver in animals dead of tuberculosis. The cirrhosis occurring with tuberculosis is an intralobular pericapillary fibrosis.

Of the type of liver cirrhosis associated with obstruction of the bile passages, the author takes little note. The author passes on to a discussion of the cases occurring in Nothnagel's clinic in the last few years. He divides the cases into the alcoholic and non-alcoholic forms. Jagic points out that the cirrhosis occurring in distinctly alcoholic subjects always presents severe gastro-intestinal symptoms with icterus and pain over the liver. In every one of his cases belonging to the non-alcoholic type there were present one or more foci of tuberculosis somewhere in the body. These cases differ in the symptoms from the alcoholic type, in the absence of icterus and pain over the liver area.

The author believes that the tubercle toxin is the direct cause of the destruction of the liver cells and that the later cirrhosis is of the character of a replacement fibrosis.

Wersilowa. "Hereditary Syphilis." *Central. f. Bakter,* 1906. Bd. XLII p. 513.

Syphilis may be transmitted from parents to child either by the ovum or spermatozoon, or through the placenta. The author attempted to trace the line of infection by demonstrating the spirochætes in the placenta, cord and internal organs of the foetus. The Giemsa and silver nitrate method of Levaditi were used to demonstrate the organisms.

In several cases of dead-born children, with definite syphilitic histories in either parent, the spirochæte pallida was demonstrated in the heart, lungs, liver and spleen. Again, in other cases, where no syphilitic history was obtainable in the mother, and where the mother showed no lesions of liver, the organism, now considered as specific for syphilis was obtained in the child. The spirochætes were particularly numerous in the lesions of pemphigus present on the children. It was also shown that the organisms were present in large numbers in the placental tissue and in the cord, but the author was not able to determine whether there was a passage of the organisms from the maternal to the fœtal portion of the placenta. The author concludes that, (1) The spirochaete pallida is present in the organs of a new-born child of syphilitic parentage. (2) the spirochæte pallida may pass from mother to child by the placental route. (3) Their presence in the placenta, cord and organs of the child is also possible, in a mother showing no signs of syphilis.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The fourth regular meeting of the Society was held Friday, November 16th, 1906; Dr. F. G. Finley president, in the chair.

CERVICAL RIB.

C. K. Russel, M. D., read the reports of four cases of this anomaly. One of the patients was presented to the Society for inspection.

F. M. Fry, M.D.—I would like to know if any symptoms have been noted with regard to this anomaly in children. In Berlin, Professor Hoffa was good enough to show me a child eight years of age, who had a cervical rib on each side, but this patient had come on account of another congenital anomaly, inasmuch as the distal phalanx of the left thumb was missing, and the stump was adherent to the hand, while the entire right thumb was lacking. There was no reason to think that this had been produced by gangrene or if so it must have been during intrauterine life. This child had slight torticollis attributed to the presence of the cervical rib. He also gave details of two other cases both of which showed some gangrene of the hand. The ages in the two latter cases I do not recall.

W. G. Turner, M.D.—In connexion with accessory cervical rib a number of cases of this kind have occurred without any symptoms, and it would seem possible that as Dr. Russel has said these symptoms do not come until after 20 or after. On looking up one of my records of clinics

I find a series of eight cases all under 20 years of age. These had come to the orthopædic clinic for treatment of scoliosis, and showed no symptoms of any other effects. They were simply diagnosed in the routine examination, and also by means of the X-rays; a definite cervico-dorsal scoliosis being present.

Oskar Klotz, M.D.—With regard to the pathological findings in the arteries, there are some very interesting points to be noted. It was found that in the right arm the sub-clavian artery was flattened out as it passed out from the thorax, and at this point it was thrombosed. Then the vessel again regained its normal and almost normal lumen as it passed into the arm, only to become occluded again at the wrist and in the hand.

There has been an abnormal course of the subclavian artery, which has acted upon the artery in such a way, either by compressing it or exposing it to friction in the movements of the arm, that a thrombosis was brought about. There a secondary thrombosis occurred in the vessels of the wrist and hand. That these arterial blockages are thromboses and not endarteritis is seen in the fact that blood pigment can be found in the new tissue within the vessel, as deep down as the original vessel wall. These thromboses are well organized and also show canalization, a process which is not seen in endarteritis obliterans. The blockage in the arteries of the right side was of greater extent than on the left, as in the latter the collaterals were not affected.

C. K. Russel, M.D.—I have been able to find no cases in the literature of cervical ribs causing symptoms in children. The youngest case was aged 13, the next 17 and the others over 20. In his review of the literature Tillman reported 26 cases in which cervical ribs had been discovered, 13 were only by accident, the other 13 having some symptoms of the condition. In 10 the symptoms disappeared by treatment; in three cases in which there was pressure on the subclavian artery and came to operation, there was recovery. With regard to why symptoms did not develop in the left hand in the patient seen by Dr. Gordon, I may say that the left hand had not been in use so constantly as the right, and that lately he has supplemented his writing a great deal by the use of the typewriter. One cannot of course exclude the possibility of the mental condition having something to do with this case but I think the rib was probably the indirect cause. The condition is evidently there before the age of 20, and I merely suggested the question of late ossification and the greater muscular development of the right side as a possible cause to explain symptoms which come on at that time. In the vertebral artery the turns which it has to take are normal; in this condition

they are abnormal; and really only occur late in life, when the bone becomes ossified, and fixed to the vertebra. Of course we cannot exclude a toxic influence in all cases; but then, why should it be only localised to this one particular part. With regard to the symptoms in the lower extremities the woman was decidedly anæmic and neurotic, and I thought the cold feet was more due to this, more especially as she did not show any cyanosis at any time. The vessels in the lower extremities did not show any changes, and this I thought would rather exclude a toxic cause.

E. W. Archibald, M.D.—Dr. Russel is fortunate to have such a series of cases, the first, so far as I know, to be presented before the Society; and especially fortunate in that he has examples of two kinds of possible effects from cervical rib, the nervous and the circulatory effects. The subject from the etiological aspect is still involved in a certain amount of obscurity. For instance the fact that these cases do not usually develop symptoms till after the age of 20 is to my mind absolutely unexplained by the suggestion which Dr. Russel has put forward, to the effect that complete ossification of the rib occurs about that time. I can hardly see why a cartilaginous structure, as regards pressure upon the nerves, can exert any less effect upon those nerves than a structure of bone. With regard to the case which I presented before this Society in January of this year under the title of "A Case for Diagnosis" even with the post-mortem before us it still seems to me to be a case for diagnosis. What the post mortem revealed was an obliteration of the subclavian on both sides; on the right extending from underneath the clavicle to the thyroid axis, and on the left occupying only the subclavicular portion. The actual cause of this obliteration is I think still somewhat to seek. The suggestion which Dr. Russel puts forward is to the effect that this rudimentary rib, which we must accept as a first rib, and not a cervical rib, has so crowded in the subclavian in its course that the later is forced to take an abnormal curve underneath the clavicle, a condition which in some way, say by variation in intravascular tension, *not* by any actual pressure, has ultimately caused complete thrombosis. There are some things to be said against this view. The mere abnormal curving of the artery is hardly sufficient to cause thrombosis; take for instance the course of the vertebral artery which makes a sharp turn on leaving the transverse process of the atlas; and yet you never hear of a thrombus at that spot. To my mind something further must be supposed. The history of the gonorrhœal infection about the same time that she developed her symptoms, about 8 or 9 years before she came to hospital, is a suggestive fact. Now we know from experimental work upon the intravenus injections of toxic substances, such as adrenalin, digalen, and nicotine, that these are capable of producing a mesarteritis, which may cause secondarily an intimal proliferation. We know also

clinically that thrombosis is not infrequent after the infectious fevers, especially typhoid. The frequent occurrence of gangrene in the extremities during an epidemic of typhus in the Russo-Turkish war, was found to depend upon arterial disease with thrombosis. All this would seem to indicate that in the present case we may have had to deal with an infection of toxic origin, affecting the wall of the subclavian more particularly at the areas of abnormal curve in the vessel. It is reasonable to think that this may have been the starting point of an endarteritis which gradually progressed by thrombosis to occlusion. A remarkable point in this woman's history is that she had symptoms not only in her upper extremities but also in the lower. In the upper there were very marked objective symptoms, while in the lower these were limited to the subjective complaint of pallor and coldness of the feet. The question then still arises was this primarily a case of arteritis obliterans, so-called? The very fact that the symptoms were present in all four extremities makes me still think that the case was primarily an intimal proliferation followed by thrombosis, and the condition only secondary due to the abnormally curved course of the arteries in the neck. Dr. Russel at post-mortem found the post tibial arteries unaffected; and for this reason is inclined to set down the symptoms in the legs as of a neurotic nature. The argument is not quite valid in the absence of evidence as to the state of the arteries in the feet and in the popliteal and femoral regions. To exclude arterial occlusion as the cause of the leg and feet symptoms, it is necessary to examine the whole course of the arteries. It is certain that at an early stage of the disease in the upper extremities the radials were patent; yet from this it would plainly have been an error to argue that the vessels proximal and distal were free from disease. The event proved otherwise.

SOME CLINICAL CONSIDERATIONS IN RESPECT OF PELVIC TUBERCULOSIS.

Jas. R. Goodall, M.D., read a paper upon this subject.

A. Lapthorn Smith, M.D.—This is a very interesting paper, and Dr. Goodall has put the subject very clearly before us. A few of my own cases which I can remember at the moment bear out what Dr. Goodall has said, though I have not had many; because, if a patient had tuberculosis of the lungs, I have never operated for pelvic tuberculosis. One of the cases was a woman who had all the symptoms of pelvic tuberculosis; with a large mass in the pelvis, in fact, the whole pelvic contents were solid. I opened the abdomen removed both tubes and ovaries not as individual organs, but as whole handfuls of caseating material. The patient lived six or seven months later, but died from general wasting. The next case was a girl of 24, whose abdomen I

opened, and found everything matted together, so much so that it was impossible to tell what one was separating, and only after cutting layer after layer did I come to a piece of intestine which I deliberately cut into in order to identify it; and closed. The patient made a good recovery and I understand is in good health now. The other case was a girl with two or three large separate masses in the abdomen and pelvis, and I tried to remove the largest one, but came to the conclusion that it would be dangerous to go on separating the mass. As it was' the hæmorrhage was frightful, and she died in 24 hours. Another case was a girl sent in to the Samaritan Hospital last year with large masses in the pelvis, diagnosed as the tubes and ovaries very much enlarged. The masses were about the size of an orange on each side, and there were several others in the abdomen. She had a temperature of 105, but on general treatment for three weeks the temperature went down to normal, and I operated to find at least five of these masses the size of a first. I did not even touch them as my experience of the hæmorrhage resulting did not warrant such a procedure. I closed the wound and four weeks after this transferred her to Dr. Brown who began the injection of iodoform. About two months ago she called to tell me that she was doing her work as a book-keeper ten hours a day in a wholesale house down town, and on examination all the masses which I had not only felt but had actually seen had disappeared. Of course it is a well-known fact that sometimes tuberculosis peritonitis is arrested or it may be cured by simply opening the abdomen. Dr. Goodall has referred to one case of fæcal fistula. This is a thing I have learned as another reason why one should be careful about breaking up adhesions of the intestines in these cases. In a case 10 years ago which came to me with the same group of symptoms I separated the adhesions, and after digging out the tubes and ovaries put in a drainage tube; and just where the tube rested in the pelvis, probably on the rectum, it went through and she had a fæcal fistula which I was not able to heal, and she died from exhaustion or from general wasting a few months later. I would like to impress still further the importance of the fact which Kelly points out that it is not wise to stir up adhesions though in these cases the temptation is great to separate the knuckles of intestine which are bound together. I find that nature knows more than we do, and in separting these coils one may find that we expose a perforation which would have taken place but for this matting together by nature. Sometimes one may be able to get pus out by vaginal drainage, although I am not much in favour of the vaginal route. In two cases I drained in this way, and gave temporary relief,

but one died some months later. The other I operated upon a year later by the abdomen, and she recovered.

F. A. L. Lockhart, M.D.—Dr. Goodall is to be congratulated in presenting this most useful paper. It represents a tabulation of a series which would take a long time for one to sort out for oneself. As regards his definition of the two conditions, primary and secondary, I think it is an extremely good one, that is, speaking from the clinician's standpoint and also from the actual scientist's as well. Because, if we diagnose a case as primary tuberculosis situated in the pelvic organs and we removed them and the patient does not develop within the next five or six years at the outside tubercular foci in any other part of the body, we certainly, I think, are entitled to classify that as primary tuberculosis of the genital organs. As regards his treatment of such cases I think it is excellent as regards the prognosis from every standpoint. Nine years ago I removed two tubes which were distended with the usual kind of inspissated pus found in these chronic tuberculosis cases. There was no tuberculosis upon the surfaces of the tubes but on making sections we came across undoubted bacilli. The woman is living to-day and perfectly well and I think the operation probably saved her life. The percentage which Dr. Goodall gives us of the tuberculous disease in cases of inflammatory affections of the tubes is perhaps a little too large, that one in every six cases of tubular inflammatory disease was originally tuberculous in nature. Personally, from naked eye appearances at all events, that percentage seems to me a little bit large. Undoubtedly careful microscopical examination of all our cases as a routine measure will develop a larger percent of cases than we are accustomed to regard as occurring. A case was sent to me, a cyst of the ovary, which presented clinically no, or but very light, manifestations of tubercular disease but upon having the walls of that cyst examined microscopically undoubted tubercular foci were there found. Now if I had been satisfied with the macroscopical examination of that case I would have missed the diagnosis. That case impressed upon me the great importance of having a careful histological examination made of all pathological material which one removes. As regards the operation for tuberculous peritonitis ending in some cases with subsequent operation for tuberculous disease of the tubes, I have had a case in the wards which illustrates that point. Five years ago the patient was operated on for general tuberculous peritonitis; at that time the appendages were presumably healthy. The patient subsequently reported to the gynæcological department and upon examination, both appendages were found extensively affected with tuberculous disease. The danger of working among ad-

lesions, in the way of producing fæcal fistulæ, cannot be too strongly emphasised. I have a case, a patient from whom I removed both appendages for tubercular trouble, where the adhesions were not at all marked, I had no trouble in separating the masses but yet on the 21st day after operation the wound opened up and, unfortunately, a fæcal fistula developed. She has been in the wards several months and it is only now that the fistula has closed up. As regards the number of cases in which both gonorrhœa and tuberculous trouble have been present in these tubes I am not surprised that Dr. Goodall states that something like 6 of 37 had a previous history of gonorrhœa. When we remember how extremely prevalent that disease is, I do not think that is a large percentage. As regards the age, it is, also my experience that it ranges from 15 to 25 though not very long ago I had a patient who was 51 years of age with no previous trouble in the pelvis and from her I removed tuberculous foci from one tube. As regards the treatment, I believe with Dr. Goodall that the only treatment, where operation is not contraindicated by serious disease elsewhere, and the only perfect treatment, is to remove the genitalia and remove them thoroughly. It is just possible that in some of these cases we might do some good in using Durant's Solution of iodine with potassium iodide and guaiacol in glycerine, but more especially this is of benefit in general tuberculous peritonitis.

W. W. Chipman, M.D.—I have been especially interested in this paper because I am familiar with some of the clinical material and also because I have been able to follow the pathological work which has been so thoroughly carried out. There are in this paper one pathological fact and two or three clinical facts which I am especially interested in. The pathological fact is the rarity of ascending infection. That is, how rare it is that any infection introduced into the healthy vagina will start up disease. This ascending infection was supposed to be a frequent occurrence, but lately it has been shown that it is extremely rare. Last year when I was in Edinburgh, Carmichæl, working in the laboratory of the College of Physicians and Surgeons, was doing some experimental work on this question, injecting into the vagina of guinea pigs a culture of the tubercle bacillus. He told me that where the vagina was healthy he practically never got any infection following the injection, but that if he scarified the mucosa and then used his cultures infection almost invariably followed. As high as eight out of 10 cases showed subsequent tuberculosis. The reason for this is that tubercle bacilli are non motile, do not grow readily on normal secretions and are easily killed by the bactericidal properties of these secretions and have not the power of

advancing against ordinary uterine lymph currents. So that we can say if the vagina and uterus of the adult female be healthy there is very little to fear from infection by the ascending route. I notice in the last Empire Journal an Italian is also experimenting along these lines. He finds it almost impossible to infect the healthy rabbit or guinea pig. But if he injected the vagina of the parturient rabbit or guinea pig invariably there was present subsequently uterine tuberculosis, the reason being that the uterine current is interfered with and you have a more or less raw surface upon which the bacillus will flourish. The clinical points are, that wherever the abdomen is opened for tuberculous peritonitis, no operator has thoroughly fulfilled his duties until he has thoroughly explored the pelvis and has removed all suspicious material found there. This would do away with the need of a subsequent operation for tuberculous salpingitis which so often has to be carried out later. Another fact is the size to which these tuberculous masses grow. A case I had recently was of a woman married eight months who came to me thinking she was six months pregnant. The whole tumour mass was made up of the uterus below and the appendages above and on either side. This was a difficult case to diagnose, the onset had been insidious, there was no fever, and it looked like an ovarian or ligamentous cyst. With regard to fæcal fistula I think it may be said that tuberculous fistulæ of the small intestine never heal and I think that in operating upon these cases if you open the small intestine the prognosis for the patient is extremely bad; in the large intestine you are more likely to get healing by your suture. There, of course, is where the judgment of the operator will come in because, as Dr. Smith has said, you must not do too much. At the same time fistulæ result sometimes from comparatively little handling. In a recent case of double tuberculous salpingitis then there was simply one coil of the ileum bound down to the tube. It was absolutely necessary to remove the diseased tube. In doing so I made two small openings into the lumen of the bowel. Fortunately this bowell wall was not extensively infilcrated. I pared the edges of these openings widely and reinforced the Czerny—Lembert suture with an outside row of mattress sutures. The fistulæ healed, affording, at least, one exception to the above mentioned rule.

Oskar Klotz, M.D.—In regard to the mode of infection of the female genitalia, at Chiari's clinic where 1,200 cases come to autopsy every year, he pointed out to me that in only one case, in records extending over 15 years had he ever felt moderately sure that infection had been by the ascending route. The case was one in which the patient had been in an insane asylum and he attributed the infection from filthy

habits. This was the only case from this huge mass of material which he could say was probably caused in this way.

The fifth regular meeting of the Society was held Friday evening, December 7th, Dr. F. G. Finley, President, in the Chair.

ECTOPIC GESTATION.

The paper of the evening on a series of cases of ectopic gestation, was read by Dr. W. W. Chipman.

A. Lapthorn Smith, D.D.—The reader of the paper has left very little to be said. His conclusions are those to which most of us have come, and I would only like to point out, as he has pointed out, so as to emphasize it, that a tubal gestation is practically a malignant disease. This feature of the case is not always fully appreciated by most physicians, namely, that the ovum is able to eat its way into tissues and blood vessels and is able to cause hæmorrhages and other disturbances just as malignant disease is able to do. When I hear the remark made in a case of tubal pregnancy, that the case will get well anyway and without an operation, I feel that the practitioner who makes it has no conception of the importance of the situation. The necessity of acting in these cases, even before one is absolutely certain as to the diagnosis, should be kept in mind. The mere fact that there is something in the pelvis which should not be there, with symptoms pointing to pelvic inflammation, justifies one in opening the abdomen even before the symptoms of rupture have occurred. I removed one case before rupture per vaginam when it was not thicker than one's thumb. The tubal pregnancy occurred during treatment for salpingitis and was felt from the beginning. My own experience quite coincides with Dr Chipman's in the relative frequency of the place where the rupture takes place in these cases. I have only had one case where the rupture was interstitial through the wall of the uterus, and no case where it occurred into the broad ligament; the majority of them were near the fimbriated end of the tube.

F. A. L. Lockhart, M.D.—Very few of us here to-night are in a position to discuss this paper, as it seems more for the histologist than for the practical gynæcologist. Dr. Chipman has not adopted the latest treatment of ectopic gestation (and in this he has exercised good judgment), viz.: the removal of the contents of the tube alone and the repair of the wound, leaving the tube in situ, or he would not have been able to so minutely examine the condition of the tube. The chief point I wish to mention is that of the decidual cells in tissues occurring either in the uterus itself or the opposite tube. Tubes of the side

opposite to the gestation sac which I have examined have never contained any such cells, and, as regards the point of decidual cells always existing in the uterus in ectopic pregnancy, I would state that I had a very good opportunity the other day of examining the interior of a uterus which I had removed in toto in a case of extra-uterine gestation, and in that uterus neither Dr. Duval nor any others who examined it were able to detect any such cells. I was very glad to hear the statistics upon the question of rupture into the broad ligament. I had always felt that my pathology was at fault for, so far, I have never yet been able to satisfy myself that any of the tubes I had examined had ruptured in this situation, but, when I note the relative rarity of the condition in the statistics just quoted, I feel satisfied that I have never come across the condition.

TWO CASES OF CÆSAREAN SECTION.

A. Lapthorn Smith, M.D.—The report of these cases will be found on page 31 of this number of the Journal.

KERATITIS LAGOPHTHALMIC WITH PATHOLOGICAL FINDINGS.

Fred. T. Tooke, M.D. read a paper upon this subject.

J. G. Adami, M.D.—I was greatly interested in the sections from Dr. Tooke's case. Experimentally, if an extremely mild irritation be set up by touching the front of the eye with caustic few polymorphonuclear leucocytes make their appearance in the region; primarily the irritation shows itself by swelling, enlargement, and proliferation of the corneal corpuscles. Here in Dr. Tooke's case there is identically the same appearance obtained in man—almost entirely a proliferation of the corneal cells, whereas ordinarily in corneal inflammation pus cells and polymorphonuclear infiltration is in the ascendant. Whether we regard this as a case of simple exposure keratitis or regard the nerve disturbance as playing any part, we are dealing here with a very simple type and not the infective type of disturbance. There has been a question as to the existence of true neuroparalytic inflammation of the eye; the experience in other parts of the body indicates that following section of the nerves a form of inflammation is set up identical with that developed where the nerves are still intact. One is not justified in dividing off a true neuroparalytic inflammation. Here we have an exposure keratitis, an exposure, it may well be, largely brought about by paralysis of the trigeminal. If in general the tendency is for paralytic inflammations to develop more rapidly and be more intense, that certainly has not been the case here. At the same time I admit that this may not afford the picture seen in every case of neuroparalytic keratitis. By

chance this eye has been little if at all infected; there is no reason why in other cases there might not be grave infections, and then the picture afforded would be of a suppurative, infiltrative rather than of a proliferative type.

J. W. Stirling, M.D.—With regard to the clinical symptoms of neuroparalytic ophthalmia I may say the ulceration is much slower in appearance and this may be due to the protection of the lids which is not present in the keratitis e lagophthalmo.

TWO CASES OF PERFORATING DUODENAL ULCER.

C. A. Peters, M.D.— The report of these cases will be found on page 35 of this number of the Journal.

G. E. Armstrong, M.D.—The closure of perforated duodenal ulcers is accompanied by certain technical difficulties. The perforation is often near the pylorus, within half an inch or sometimes less; the edges are much thickened, and often a good deal of inflammatory induration is present. To turn in and close the ulcer as one would close an ulcer in the anterior wall of the stomach would lead to puckering and undue narrowing of the pyloric orifice. In several such cases I have effected closure, the parts coming together without tension, and it ensures functional results satisfactory in every way. Thorough drainage of the stomach is established, and the ultimate recovery in the cases where I have adopted this procedure has been all that could be desired.

ANNUAL MEDICAL REPORT MONTREAL MATERNITY HOSPITAL.

J. C. Cameron, M.D.—In laying the report before the Society, Dr. Cameron wished the members to peruse it at their leisure when at a subsequent meeting of the Society it might be fully discussed. This is the first complete report of the kind which the Hospital has been able to issue, it now having a permanent staff and facilities for the collection of statistics which are everything that could be desired in the way of accuracy and completeness. A particular study lately has been the examination of pelves, deformed, flat, etc., and their bearing on labour.

The sixth regular meeting for Session 1906-07, was held in the Society's rooms, on Friday evening, December 21st. Candidate for election to resident membership, Dr. J. T. Rogers.

PROGRAMME.

Medical Instruction in Germany and France, illustrated by lantern slides, Eugene St. Jacques, M.D.

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GLANDERS IN CANADA.

BY

GEORGE D. ROBINS, B.A., M.D.,

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It is the purpose of this communication to explain how glanders, an exceedingly common disease among horses, is being dealt with in Canada, and to show by the brief relation of several human cases that, although in this country glanders in man is, without doubt, relatively rare, it is, nevertheless, sufficiently common to deserve more attention than it has received in the past, when attempting to diagnose obscure suppurative and granulomatous conditions. The connexion of the first part of our subject with the human disease will be clear when it is remembered that the great majority of cases of human glanders—at least ten of the eleven Canadian cases hereunder included—are directly traceable to a diseased horse; so that the stamping out of glanders among horses would mean its practically complete extinction as a human disease.

Equine glanders was probably introduced into Canada by the army horses brought over from England and France in the 18th century. The circumstances connected with the human cases reported by Dr. Smallwood and Dr. Richardson warrant the statement that the disease was well known and widespread among horses in Quebec and Ontario in the forties of last century, though for this period no reliable veterinary evidence is obtainable. There is little or no evidence that equine glanders has ever been prevalent in the Eastern Provinces, but in view of the unexpected number of cases of glanders recently discovered in some other parts of the Dominion previously supposed to be comparatively free from glanders, it is quite possible that the Maritime Provinces may not be absolutely free from the disease. For over twenty years the Manitoba Government has had fairly efficient legislation designed to stamp out this disease, which has prevailed there ever since the Province was settled. About one hundred cases of equine glanders were

dealt with in Manitoba yearly for several years. This number had fallen to fifty in 1902. But it is to be remembered that it was the custom of the Manitoba Government to rely mainly on clinical appearances for a diagnosis of glanders and that contact animals, which very commonly have the disease in a latent form, were rarely tested with mallein. The unsatisfactory nature of the results obtained by such a policy is clearly shown by the fact that from the time the Dominion Government took over the work, in February, 1905, up to March 31st, 1906, employing mallein as a means of diagnosis in contact animals as well as clinical suspects, no less than 871 horses were slaughtered for glanders in this Province.

In the Northwest Territories glanders has been traced back as far as horses purchased for use on the trip made in 1882 by the Marquis of Lorne. In 1885 Dr. J. G. Rutherford, the present Veterinary Director-General for Canada, came across and destroyed a large number of native glandered horses in the Northwest Territories. Unfortunately the Dominion Government of that time failed to act upon Dr. Rutherford's report on these facts and for years glanders was allowed to spread unchecked in the Territories, which in turn served as a distributing source of the disease to other parts of the Dominion. From 1898 to 1902 inclusive about one hundred cases of glanders were dealt with yearly in the Territories, of which cases the Regina district furnished half. Elsewhere in the Dominion, previous to 1902, glanders was dealt with in a very half-hearted way. In that year the control of veterinary matters generally all over the Dominion, except in Manitoba, was taken over by the Dominion Government, and under Dr. Rutherford's direction a vigorous campaign was begun against glanders and other infective diseases of animals.

The method adopted in 1902 by Dr. Rutherford in dealing with glanders was as follows:—A veterinary officer of the Department was sent at once to investigate each outbreak of glanders reported. His instructions were to destroy without compensation all animals clinically glandered, first testing them with mallein * if there were any possible doubt as to the diagnosis. All horses that had been in contact with glandered animals were also tested with mallein. If these contact animals reacted, but showed no clinical signs, the owner was forbidden to sell or otherwise dispose of them, he was forbidden to stable them elsewhere than on the premises they were on, and was obliged to keep them isolated from non-reactors and to have them always available for Gov-

* Mallein is analogous to tuberculin. A few hours after its injection hypodermically, a glandered animal develops a considerable inflammatory swelling at the point of injection (local reaction), transient febrile disturbance (febrile reaction) and constitutional symptoms (general reaction). Very little disturbance follows the injection of mallein in a non-glandered horse.

ernment inspection. One hoof was branded 'E. R.' to identify such animals, and the branded hoof had to be preserved if the animal died. Such horses (latent reactors) were retested with mallein 40 days after the first test and if they still reacted, again 60 days later. Horses which ceased to react under this repeated testing were released from all restrictions, save that their sale was still forbidden and that they were required to be kept available for Government inspection. If an animal still reacted at the third test, an attempt was made to gain the owner's consent to its destruction. If he refused, a final test was made 90 days after the third, and if there was still a reaction, the animal was killed. Of course all latent reactors which at any time developed clinical signs of glanders were at once destroyed.

Expensive and irksome as was this system of repeatedly testing latent reactors, it seemed the fairest that could be adopted under a system of non-compensation, and it may be added that this method of dealing with glanders was more advanced than that of any other country when it was adopted in Canada. A British Departmental Committee, appointed to discover whether latent reactors could communicate glanders to healthy horses, had decided that the danger of infection from latent reactors, even when allowed to mingle with other horses in the freest possible manner, was but slight. Under such a system of isolation as that described, the danger might reasonably be expected to prove nil. And to insist upon the destruction of apparently healthy animals without any compensation was obviously unjust. For these reasons the system described was continued in force for about two years. In this period, of 900 horses retested not quite 25 percent. had become ceased reactors. There was always the chance too that latent reactors, which seem particularly liable to have the disease in an acute form, might develop clinical symptoms and spread the disease in the considerable intervals between the inspector's visits. In so extensive a country as Canada the expense of this retesting was enormous, as the distances to be travelled were so great. All in all, from an economic standpoint the results obtained did not justify the expense incurred. But an even more important reason for remodelling the system was found, thanks to Dr. Rutherford's policy of keeping track of all ceased reactors in the country. Outbreaks of glanders were occasionally found in which the disease was directly traceable to a ceased reactor—a possibility that had apparently never been found out before this. In four out of five ceased reactors living glanders bacilli were demonstrated in the lesions found at autopsy by Dr. C. H. Higgins, Government bacteriologist.* It was thus clear that not only

* For much valuable information regarding ceased reactors, see Special Report on Glanders, by J. G. Rutherford, Veterinary Director-General, Department of Agriculture, Canada, September, 1906.

was the system that had been adopted under stress of existing circumstances a very expensive one and one that finally saved a relatively small number of the horses dealt with, but even the small proportion of horses so saved might become a source of danger to other animals.

Accordingly, in 1904 the Canadian Government decided to pay to owners two-thirds of the value of all horses that reacted to mallein, provided that the animals were destroyed at once. Such a method is radical and at the same time fair to the owner, and it is believed that no other country anywhere has adopted an equally advanced policy in dealing with this disease; but it is necessary to point out one flaw in this otherwise ideal system. There is a clause giving any owner of latent reactors who strongly objects to the destruction of such animals the option of quarantining them for retesting, provided that he forfeits all claim to subsequent compensation by doing so. The retests are limited to two, and all animals still reacting are killed immediately after the third test, without compensation; but if the animal retested ceases to react, it is released, subject to the conditions previously specified. No doubt the forfeiture of claim to compensation will prevent most owners from choosing the retest, and the great majority of animals held for retest are eventually destroyed; but in the 17 months ending March 31st, 1906, 174 horses retested had become ceased reactors, and it is to be feared that the presence of these ceased reactors among other horses may be the source of fresh outbreaks of the disease, as indeed has occurred in the past. The elimination of this one objectionable clause would add little to the total expense incurred by the Government, and although the expenditure for compensation will be very heavy for some years, there is no doubt that, energetically carried out, this policy will be the most economical eventually. Its efficacy in bringing to light cases of glanders that would otherwise have been concealed is shown by the fact that during the 22 months ending August 31st, 1906, 4,446 horses were destroyed for glanders, or more than six times as many as had been dealt with in any similar previous period. Of this number, 1,995 were clinically glandered. That is to say, more than twice as many clinical cases have been brought to light, since the adoption of a policy of compensation, as in any similar previous period. The amount paid in compensation for these horses by the Department was over $300,000, but this amount is small indeed when compared with the sums which other countries have had to pay in stamping out contagious disease among animals. For example, Great Britain paid during the years 1865-68 $5,500,000 compensation for rinderpest among cattle.

The figures obtainable* show that glanders is now most prevalent in the Provinces of Manitoba, Saskatchewan and British Columbia. In Saskatchewan the Regina and Moose Jaw districts, with the regions east and south of this, are chiefly affected, and in British Columbia the Okanagan Valley and the Pacific Coast to a less extent. In Ontario the districts around Ottawa and Perth, and the Rainy River District, adjoining Manitoba, are the regions most affected, while in Quebec the disease seems most prevalent in the Saguenay and Chicoutimi Districts. 20 horses were destroyed for glanders in Montreal during the 17 months covered by this report. A tabular statement of the glandered horses destroyed in different years in the various parts of the Dominion will bring this portion of our subject to a close. *It is impossible, however, to conclude without an acknowledgment on the part of the writer of his indebtedness to Dr. J. G. Rutherford, Veterinary Director-General, for most valuable information. To Dr. Rutherford is due the inauguration in Canada of the most radical and most advanced method of dealing with glanders in vogue in any country, and it is most satisfactory to find that both Great Britain and the United States are awaking to the necessity of following the lead of this country by adopting similar methods in dealing with this insidious and dangerous equine disease.

Very little that is general can be said regarding human glanders in Canada. After a somewhat industrious search of the literature, the writer was able to find only four Canadian cases on record, prior to the publication of our own case. Yet indications are not wanting to show that human glanders in Canada is by no means so rare as the foregoing statement would lead one to suppose. Dr. Smallwood, a country practitioner of Isle Jésu, near Montreal, was able to diagnose the second case of glanders reported on this continent, even before the appearance of the characteristic pustular rash. Another case that occurred near Toronto in 1848, apparently the fourth in the Western Hemisphere, was only published from Dr. Richardson's note-book in 1904. Dr. John Reddy's Montreal case, published in 1876, was apparently the next Canadian case reported. Dr. Reddy found, however, on searching through the mortality records for Montreal that three cases of glanders had occurred there during the preceding year, and Dr. F. J. Shepherd informs the writer that about this time an epidemic of human glanders, about a dozen cases in all, occurred in Montreal. Of these last cases the writer has not been able to get any account, but is enabled to add, by the courtesy of the Medical Board of the Montreal General Hospital, the

* Department of Agriculture, Canada. Report of the Veterinary-General, Nov. 1st, 1904, to March 31st, 1906, an advance copy of which was received through the kindness of Dr. Rutherford.

PROVINCE.	Previous to 1902.	Year ending Oct. 31, 1902.	Year ending Oct. 31, 1903.	Year ending Oct. 31, 1904.	Year ending Oct. 31, 1905.	5 months ending March 31, 1906*.
British Columbia	No figures.	No figures.	2	2	98	623
Northwest Territories	About 100 y'rly.	112	219	104	912	Sask. 230 Alta. 68
Yukon	No figures.	No figures.	Several cases.	3	9	1
Manitoba	About 100 y'rly.	50	60	No figures.	661	210
Ontario	No figures.	No figures.	69	35	84	114
Quebec	No figures save 4 in 1901.	No figures.	23	55	319	141
Maritime Provinces	No figures.	No figures.	None.	None.	None.	None.
Total for Dominion	No figures.	No figures.	373	Exclusive of Man. 499	2,113	1,387

* During the 5 months April 1 to Aug. 31, 1906, 946 additional horses were slaughtered for Glanders in Canada, but figures showing the localities in which these cases occurred are not yet available.

account of a case that occurred there in Dr. Wilkins' service in 1885. In 1889 O'Brien's case, the last Canadian case that had previously found its way into medical literature, was published.

It is evident, then, that human glanders in Canada was not in former years the rare disease that it is generally supposed to have been, and there is some evidence that even yet it is by no means very rare, for the writer has knowledge of at least four cases of glanders in man that have occurred in Canada during the last two or three years. Three of these were brought to his attention through the unfailing kindness of Dr. Rutherford, who set on foot among his inspectors inquiries which resulted in the discovery of these cases. The fourth case occurred a year ago at the Montreal General Hospital in the service of Dr. George E. Armstrong, and to Dr. Armstrong and the Medical Board of that Hospital I am indebted for permission to publish the case here. Dr. A. E. Vipond was also kind enough to give me his notes of a case that was probably glanders, but, as the case was somewhat atypical clinically and there was no definite history of previous contact with the disease, it has been thought best not to include this case here, though it presents points of unusual interest. It is likely that several cases of human glanders occur annually in Canada. Some of them are overlooked here, as they are in other parts of the world, owing to the relative rarity of the disease in man It is no disgrace to the medical profession to admit that not improbably many Canadian human cases have gone unrecognized, seeing that expert bacteriologists with every modern means of investigation at their disposal have not infrequently experienced considerable difficulty in finding out the true nature of the disease. And from a clinical standpoint the difficulties in the way of making a definite diagnosis are often almost insuperable, particularly in the chronic form of the disease. Glanders is a disease the symptomatology of which is quite as varied as that of the other infective granulomata—tuberculosis, syphilis and leprosy. And the fact that not uncommonly the diseased man has not a single symptom in common with the horse from which he contracted the disease is apt to withdraw one's attention from what may be the only important clue to clinical diagnosis. To cite a concrete case, our own patient was ill for at least twenty months and, nevertheless, during all this period he did not manifest one symptom in common with his horses, some of which had been diseased for over three years before they were shot.

Limits of space forbid further discussion here. Those who are interested in the subject will find further details in the *Royal Victoria Hospital Studies,* Vol. II, No. 1. Chronic Glanders in Man. Enough, however, has been said to show that human glanders, though uncommon,

is much more frequent than most medical men have been wont to regard it, and it is hoped that, if in the past there has been any ground for the opinion prevalent among veterinarians that glanders—like other diseases of animals communicable to man—has been far too slightly regarded by the medical profession, there will in future be no reason for them to hold this opinion, as far as Canada is concerned.

Of the eleven Canadian cases, an abstract of which will be given in conclusion, four or possibly five were chronic; ten of the eleven cases died of the disease, and one (Armstrong's) is incomplete, its subsequent history being unknown. All the patients were adult males. In every case, save that of Wilkins, in which the source of the disease is not mentioned, the human malady was clearly traceable to glandered horses.

CASES OF HUMAN GLANDERS IN CANADA.

Smallwood. Isle Jésu. *British American Journal*, I, 1846, 201.—Farmer, aged 42, took ill on April 20th, 1844, with headache and pain in the back of the neck, worse on movement and severe enough to prevent sleep. When seen on April 22nd he had in addition slight swelling and redness of the right eyelid, the usual symptoms accompanying fever, and a pulse of 90. On April 24th his headache was better, but there was pain in the neck and limbs, the swelling of the eyelid had increased, and his throat was sore. The bowel movements had been free and offensive. On April 25th the right eye was completely closed by the inflammatory swelling, the patient was very restless and had a pulse of 100, deglutition was difficult, there was general pharyngitis, and the nasal and buccal secretions were increased. The breath was offensive, the tongue furred, the bowels loose, with dark and offensive movements.

Inquiry showed that a glandered horse of the patient's had snorted in his face while a drench was being administered two or three days before the onset of the illness. The man did not wash his face till some time after. About midnight of April 25th complaint was made of intense heat of the head, neck and throat, and dysphagia was increased. Both eyes were swollen, there was dyspnœa, the stools were dark, liquid and offensive, the pulse 110, and there was occasional delirium.

By 1 p.m. on April 26th the eyelids could not be opened on account of the livid swelling, the surface temperature had fallen, he was delirious and unable to swallow, the nasopharyngeal secretion was dark and viscid, the pulse 120 and small, and the motions, still offensive, were passed involuntarily. A number of pustules, the size of small-pox lesions, containing dark red fluid, had appeared that morning on the legs and body, with two similar lesions on the face. There was dyspnoea, muttering delirium and subsultus, and the skin was bathed in perspiration. By

8 a.m. on April 27th he could hardly be roused. The nasopharyngeal secretion was copious and very offensive. Death occurred at 6 a.m. on April 28th. No autopsy was permitted.

Notanda:—The first case recorded in British North America, and apparently the second on this continent; definite diagnosis made by Dr. Smallwood even before the appearance of the pustular rash; period of incubation apparently two or three days.

Richardson and Morrison. Near Toronto. *Canada Lancet*, XXXVIII, 1904-05, 415.—Morrison had for some time been treating a man near the Don for intermittent fever, with quinine and pil. hydrarg. The patient had had rheumatic attacks in different parts of the body and one knee was inflamed. On April 3rd, 1848, as he was quite feverish and costive, he was given a purgative after being bled.

When seen by Dr. Richardson in consultation on April 10th, 1848, the facies was anxious, eyes congested, pulse rapid and weak, and there was profuse sweating. Breathing was noisy and accompanied by a mucous click, which disappeared when the mouth was open. There was also cough, with hurried, laboured breathing, the tongue was furred and the bowels costive. Several swellings like boils had appeared in the preceding 24 hours, one on the back of the left hand, one on the side of the nose and some on the arms. These were large, hard and purplish, with considerable redness surrounding, and one or two of them were suppurating. The left knee was swollen and red and just in front of it was the largest of all these lumps. There was great prostration and slight subsultus, but the mind was clear. The posterior fauces were congested and purplish. It was considered that the dyspnœa was partly, at least, due to trouble in the posterior nares. The next morning the patient was weaker, abundant thin mucus was oozing from his nose and he died. There was no autopsy.

Inquiry elicited that the patient had had several glandered horses for six months previous. An examination made at the time the patient was visited showed that three of the horses had nasal discharge and one, submaxillary enlargement. The man had been seen to drink from a pail after the horses and to wipe their noses with his handkerchief or his fingers.

Notanda:—This, apparently the second case to occur in British North America, and the fourth on this continent, was not published till fifty years after its occurrence. The neighbours, when talking with Dr. Richardson about the man's horses, said that they had glanders, "and that is what he has too." Such a statement throws an important side light on the frequency of human glanders in this country in former times. This may have been a chronic case.

John Reddy. Montreal. *Canadian Medical and Surgical Journal*, IV, 1876, 401.—On November 9th, four days after a trip by boat, lasting two days, an engineer began to have occasional uneasy, but not painful sensations about his body and limbs. He was first seen on Nov. 13th, the day after a severe chill had occurred, followed by sweating. He then had the usual febrile symptoms, a temperature of $100\frac{2}{5}°$, shooting pains in all the extremities and the right scapula, and some dyspnœa, but no pulmonary signs. A diagnosis of probable incipient typhoid was then made, but after a severe rigor with profuse sweating on November 16th, the case was considered malarial.

On Nov. 15th there was headache, a temperature of $99\frac{3}{5}°$, with pharyngeal congestion and soreness. On Nov. 19th a goose egg sized swelling, said to have appeared during the previous night, was found below the right clavicle. This swelling had nearly disappeared two days later, but the patient was very weak and continued to perspire profusely. On Nov. 24th a number of firm, filbert sized swellings were noticed on all the extremities, and a tumour larger than a goose egg was found in the suprascapular fossa. This latter subsided three days later. The urine was negative.

On Nov. 27th severe pains were present in the arms and legs, and pink streaks of lymphangitis were for the first time seen connecting the tumours. The prostration increased, notwithstanding energetic stimulation. On Nov. 30th a few dark, erythematous patches were seen on the extremities. The temperature and pulse were running higher. On consultation with Dr. Ross no diagnosis was made, beyond a recognition of the septicæmic nature of the disease. On December 1st a number of vesicles were noticed on the arms and shoulders. These contained thin pus surrounded by lymph-like fluid on a pinkish base, and appeared in scanty successive crops, evolving in four or five hours. On December 2nd there was a pustular rash on the face and a large chancroidal pustule near the right ala nasi.

The patient now volunteered the statement that on his passage up to Montreal he had had to see to a number of horses, ten of which had an offensive nasal discharge, two of them dying on the way. The diagnosis of glanders was now clear.

On December 3rd the urine contained albumin and probably blood, but no casts. Signs of right-sided pneumonia and a coarse friction developed, a yellowish, fœtid nasal discharge appeared, there was low muttering delirium, and death occurred on December 4th.

Notanda:—General symptoms four or five days after infection and ten days before local manifestations; the evanescence of some large lesions;

the comparatively late rash in small successive crops; the final definite nasal and pulmonary signs.

WILKINS. Montreal. *Montreal General Hospital Case Reports*, XIV, 49.—These notes are here abstracted by kind permission of the Medical Board of the Montreal General Hospital.

A previously healthy carter, aged 23, was admitted to the Hospital in the service of Dr. Wilkins on April 28th, 1885, complaining of dorsal and lumbar pain. This had developed on April 23rd, after sleeping in his wet clothes following a debauch. That evening he was chilly and had cold sweats. The pain extended and increased so that the patient was unable to work, though his appetite was fair.

On admission there was a fairly well limited area of tenderness over the lumbo-sacral articulation, also pain extending up and down the right femur, most marked over the trochanter. There was no inflammatory reaction over the affected parts. There were the usual symptoms accompanying fever and his temperature ranged from 100° to 102°. Chilly sensations and cold perspirations occurred nightly and there was herpes of the lips. Salicylates, given with some improvement on admission, were discontinued on May 2nd.

On May 5th there was scanty, transient, bloody discharge from the nose, and on May 6th the right and left ankles and right wrist were greatly swollen and inflamed. The temperature was now 103° to 104°, pulse 100, general condition fairly good. On May 8th the left wrist and both knees were greatly inflamed, pulse 110. A pustule was noticed over the left malar bone. On May 9th a blowing systolic murmur, transmitted to the right of the sternum, was heard at the aortic cartilage, but the præcordial pain previously present was diminishing. Another large pustule had developed on the upper lip. On May 11th there was muttering delirium with great prostation, the joints previously mentioned were greatly swollen and œdematous, and several of them, including the left wrist, fluctuating. There were deposits of fluid in the right leg anteriorly and numerous shot-like papules on the face, wrists, legs and body. These papules soon became pustular, and were depressed centrally and ulcerated, or else disappeared. A thick, gluey, bloody mucus blocked the left nostril. The pulse was 120, evening temperature 105°. On May 12th the temperature was 104°, pulse 130, respirations 30 and stertorous. The nostril was completely blocked, though nasal discharge had ceased. The facies was pinched, the tongue dry and brown. On the face an erysipelatous swelling was seen surrounding groups of pustules. The rash was most abundant on the face, legs, dorsum of the feet, arms, chest and back. A subsequent note states that the fluctuating deposits of pus had increased over the regions previously

mentioned and were most developed over the left leg and right thigh. Other joints were affected and had an erysipelatous appearance.

Prostration was extreme and there was stupor, though nourishment was still taken when put to the lips. Coarse tremor of the hands developed and the patient became comatose and died. At the autopsy by Dr. Finley, in addition to the farcy buds, there were nodules found in the lungs, though no pulmonary involvement was noticeable during life.

Notanda:—The vague rheumatic onset; involvement of large joints successively and transient nasal discharge two weeks later, followed by papulo-pustular, umbilicated rash appearing in successive crops, intramuscular foci, gluey nasal discharge, phlegmon of face and about joints; pulmonary involvement at autopsy in spite of the absence of clinical pulmonary signs.

Anonymous Manitoba Case. Private communication. In 1885 a man who had had the care of his glandered horses had a series of subcutaneous and intramuscular abscesses. Nasal discharge was superadded and the patient died after three months illness.

This case was not diagnosed glanders, but the clinical history seems fairly clear.

O'Brien. Ottawa. *Montreal Medical Journal,* March 1889, 641.—A man, aged 37, previously healthy, was hurt on November 23rd, 1888, while attending sick horses. Since then he had very severe frontal headaches, general malaise and feverish symptoms. When first seen on November 27th, there was a temperature of 102°, pulse 100, and some lymphangitis along the inner sides of the legs, but no abrasion and no glandular enlargement. There was also an abscess in the right biceps which when incised on November 28th discharged an ounce of bloody pus. Insomnia was very troublesome and morphine gr. 1½ in six hours gave no relief and no sleep. By November 30th the lymphangitis had increased and certain tender spots were noticed along the inner side of the right leg, also a superficial hardness the size of an almond. Severe pains in the knees developed, but there was no objective abnormality. There was occasional diarrhœa.

A number of abscesses were opened on the extremities, December 4th to 9th. The patient became delirious and passed into a typhoid state. On December 7th a few acne-like papules developed around the large forehead ulcer. Nourishment was still taken. On December 11th the nose became swollen and discharge from it diminished. The patient died stuporose on December 12th, the temperature having risen to 104° and the pulse to 140.

Notanda:—General symptoms soon after injury; lymphangitis and one abscess four days later; severe obstinate pain preventing sleep;

multiple abscesses; diarrhœa; papulo-pustular rash; nasal involvement; phlegmon of forehead.

Robins and Bell. Province of Quebec. *Royal Victoria Hospital Studies*, II, No. 1, May 1906.—A hard-working farmer of 46, giving no history and showing no evidence of venereal disease, had in November 1900 a grippe-like febrile attack, accompanied by a couple of slowly developing, painful, acne-like pustules on the forehead, with transient surrounding urticaria. These pustules refused to heal and in the course of a month three large intramuscular foci developed in the left lower extremity, accompanied by occasional sharp febrile movement, though the temperature was for the most part almost normal. Some foci contained pus on incision, others were solid, with a little oily fluid in the centre. All the foci opened or let alone were most persistent, but prompt healing followed the excision of a glandular focus beneath the jaw. Swabbing out foci with liquid phenol was the only local treatment of any value, and even with it results were slow.

When the foci began to develop, a disease contracted from animals was thought of. Inquiry and a personal examination by the writer of the patient's horses led to a diagnosis of glanders, and a positive mallein reaction in four of the horses, when tested by Dr. A. E. Moore, confirmed the diagnosis, though guineapigs inoculated with cultures from the human wound secretions in February, 1901, failed to develop characteristic symptoms. The weight lost by the patient at first was gradually regained. In April 1901 mallein was administered to the patient, one-sixth of the dose used for the horse being employed. Absolutely no reaction followed. A fortnight later the temperature range was higher, there was severe headache, and the urine slightly reduced Fehling's.

On May 28th, 1901, he was admitted to the Royal Victoria Hospital under Dr. Bell, to whom I owe the notes of his stay there. The urine now contained .8 of one percent. of sugar, but this promptly disappeared on the addition of antidiabetic diet and the urine remained normal even after a return to ordinary diet. The glanders bacillus was repeatedly demonstrated by Drs. Archibald and Keenan in the discharge from the sinuses, by culture and inoculation of guineapigs. As a rule the bacillus mallei was present in pure culture. A focus which developed on the occiput in June, apparently in the bone, was opened and scraped on July 20th. He left the hospital comparatively well on September 21st, 1901, though the occipital focus was still discharging.

Following undue exercise, the occipital wound broke down, pieces of dead bone came away, and headache increased. In January, 1902, one of the posterior cervical glands became enlarged and soon broke down. Glycosuria reappeared. Extensive burrowing beneath the skull occurred in various directions, though the lesions seemed entirely extradural.

He was readmitted under Dr. Bell on February 24th, 1902. The results of further operation on the extradural focus were unsatisfactory. The patient's health and strength failed gradually, painless enlargement of the liver developed, and death occurred on September 1st, 1902, the patient having become comatose a few hours before death.

I am indebted to Dr. Adami and Dr. Nicholls for notes of the hurried autopsy made by the latter. The anatomial diagnosis was:—*Chronic Glanders*: Multiple abscesses in glands, muscles, spleen, lungs and liver; chronic local granuloma of dura mater with compression of left occipital lobe; amyloid disease of liver, spleen and adrenals; acute fibrinous perihepatitis and perisplenitis; portal pylephlebitis; acute colitis; chronic parenchymatous with early interstitial nephritis; broncho-pneumonia.

Notanda:—Absence of tendency to mixed infection; intermittent glycosuria, apparently unique in the history of glanders; great difference as to symptomatology between chronic glanders in horses and in man, particularly as regards nasal and pulmonary symptoms, absent throughout in our case; failure of the mallein reaction.

McCULLOUGH. Saskatchewan. The notes of this case are owed to Dr. J. G. Rutherford, Veterinary Director-General for Canada. Dr. McCullough was written to and permission was asked to make use of the case, but no reply was received before going to press.

A man contracted glanders of the farcy type from his work horses. He recovered after about four months of sickness, during which time about 50 abscesses on his legs and arms were opened. He wintered in California, returning home in the spring to die of lung trouble.

The diagnosis of glanders was verified by Dr. Bell, Government Bacteriologist for Manitoba.

Notanda:—The enormous number of abscesses opened; apparent recovery; death from pulmonary disease which was very probably of a glanderous nature.

GRAIN AND ROSS. Manitoba. Notes of this interesting case were obtained through the courtesy of Lr. Rutherford, Veterinary Director-General.[1] Dr. Ross, in whose charge the case was, was written to by the writer, permission to use the notes being asked, but no reply was received.

A farmer, aged 22, had for some months had the care of a horse with constant nasal discharge. He had, however, been away from home for several weeks previous to August 20th, 1905. On that date, as the nasal discharge was unusually profuse, he closely examined the horse, particularly its nostrils and mouth. Doubtless infection took place then. On

[1] An account of this case is given by Dr. McGilvray, Chief Veterinary Inspector for Manitoba, in the Veterinary Director-General's Report for 1905. Department of Agriculture. Canada. Page 123-4.

August 22nd he began to feel sick and languid, though still able to work a little. On August 23rd his appetite fell off and there were pains in the region of the loins and hips. On August 26th the patient became suddenly worse, refusing all food and complaining of pain in all his joints, the articulations and synovial membranes becoming involved. At this date Dr. Ross was called in and diagnosed the case as one of probable typhoid, as there were then no external manifestations suggesting glanders. On September 3rd, however, a large, hot, painful nodule appeared on the forehead. On the 4th and 5th the nodules increased in size and number, appearing on the legs, chest and arms simultaneously. These and also the joints affected were exceedingly painful. On September 6th the nodules had become pustules and were breaking down into ulcers.

Glanders was now suspected and after a visit to the stable to see the horse affected, this diagnosis was definitely made by Dr. Grain, who was called in consultation. The pustules and ulcers developed very rapidly. The nostrils became ulcerated and discharged a gluey, bloody material. Ulcers appeared on the eyelids and around the lips. Owing to the ulcers and the viscid, adherent discharges from them, one eye was completely closed. The patient sank rapidly and died on September 8th, literally covered with pustules and ulcers. The diseased horse reacted to mallein.

Notanda:—Period of incubation, definitely two days; typhoid-like onset without local signs, lasting 12 days; period of eruption and nasal discharge and ulceration, lasting five days.

Armstrong. Montreal.—This case was abstracted from the *Montreal Hospital Case Reports,* and is here published for the first time by the courtesy of Dr. Armstrong and the Medical Board of the Montreal General Hospital.

A florid, stoutly built man, aged 37, was admitted under Dr. Armstrong on October 27th, 1905, for swelling of the right side of the neck and right axilla. He gave a history of alcoholism, gonorrhœa and a bubo. In 1902 he had a chancre nine weeks after exposure, followed two months later by a rash on the limbs, mucous patches, and falling out of the hair. For this he received antisyphilitic treatment and the rash disappeared. Several months later a rash appeared which soon broke down and ulcerated, leaving scars and blotches, mainly on the flexor surfaces of the extremities, that were still recognizable on admission to the Hospital. With this rash the original chancre reappeared and broke down. The lesions healed up in a year without special treatment.

In June 1905 many of the horses in the circus where the patient had been employed had to be destroyed on account of glanders. He did not look after these horses, but had to put up and take down the tents in which they were kept. A few days later he noticed in his right axilla

two inflamed lumps which rapidly enlarged, and he felt rather out of sorts. One of these swellings reached the size of a hen's egg and broke down. It discharged bloody matter and was not entirely healed when he entered the hospital. In July 1905, while the patient was on board ship, an inflammatory swelling gradually developed on the right side of the neck and became so painful that he himself incised it, with much relief from the resulting discharge of pus and blood. This swelling, though not very painful, kept extending and for this he entered the hospital.

On admission he showed a dusky red, immobile, inflammatory swelling, the size of a goose egg, below the jaw, discharging creamy pus through a small opening at its centre. The right axilla showed a few hard nodules adherent to the skin, one of them discharging a little creamy pus, and an area of mottled redness extending to the nipple. The glands generally were palpable and there was a slight abrasion of the nasal septum, unchanged six weeks later. Pulse 96, respirations 20, temperature 99⅘°. On October 31st only staphylococci were found in pus from the neck. On November 6th a mass of glands, hæmorrhagic internally, was dissected with difficulty from the vessels and nerves of the axilla. The evening temperature began to run higher, reaching 104° on November 17. From November 16th to 18th the patient felt wretched, was chilly, had some cough, and vomited occasionally. On November 21st the mass in the neck was dissected out and proved to be inflamed and breaking down glands.

Guineapigs inoculated with the material removed at operation failed to develop orchitis. Dressed with carbolic acid 1-100, the wound had entirely healed by December 2nd, after which date there was no more vomiting. The temperature ranged lower after this operation and was normal after December 8th. There was pain in the left side, cough and muco-purulent expectoration, bloody at times. Examination of the chest showed only some wheezing. The mucosæ of the larynx and pharynx were pale.

The patient's general condition remaining good, he was discharged on January 2nd, 1906. Unfortunately the further history of the case is unknown.

Notanda:—History of contact with glanders; obstinacy of glandular foci; abrasion of nasal septum, unaltered in six weeks; suggestive character of the slight pulmonary manifestations; benefit following radical surgical measures; probable combined infection with two of the infective granulomata, though experimental proof of glanders was lacking.

Stewart. Manitoba. The first authentic account received of this case (by Dr. McGilvray) is also owed to Dr. Rutherford. Dr. J. D. Stewart

of Darlingford, in whose charge the patient was, very kindly placed at the writer's disposal his own notes of the case.

A farmer, aged 35, whose horses had been treated by him for some weeks for supposed distemper, began to feel unwell on May 5th, 1906. He had been wet the day before and thought that he had caught cold. He continued to go about and do his work until May 8th, when he took to bed with severe pain in the right leg and left arm. The man now supposed himself to be suffering from inflammatory rheumatism. On May 12th Dr. McGilvray, Chief Inspector of Stock for Manitoba, found that the sick horses were suffering from advanced glanders and destroyed them. He also examined the patient, who had pains in the axilla and in the neighbourhood of the joints, particularly the knees and hips. His face showed marked icterus, with darkish areas under the eyelids. Dr. McGilvray diagnosed glanders and had Dr. Stewart sent for, who confirmed the diagnosis. At Dr. Stewart's first visit the only lesions were a painful, swollen, tense, shiny area of cellulitis the size of one's hand on the right calf and a similar area of inflammation on the left upper arm. The patient was restless and feverish (temperature $103\frac{2}{5}°$, pulse 100) and had slept badly the night before. The circulatory and respiratory systems were negative. On May 13th the patient's condition was unchanged. The lungs and nasal passages were normal. On May 16th the fever was high and an ulcer about half the size of a five cent piece had formed on the left shoulder, also one on the face and one on the left thigh. The pulse was quite irregular. There was no cough and no nasal discharge. On May 17th the patient had been in agony and was greatly depressed. Over a dozen small lesions had developed on the shoulders, back and thighs. These showed all stages between reddened papules and pustules, but had not at that time ulcerated. On May 19th the patient was literally covered with sores and died on the 20th. No other human cases developed, though a rumour to that effect was prevalent at the time of the man's death.

Notanda:—Period of general illness preceding by some days all local manifestations; scantiness of local lesions till two or three days before death, when they developed very rapidly.

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THE FAMILY PHYSICIAN AND THE INSANE.

BY

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Having accepted the honour of reading a paper before your association, it behooved me to select a subject alike interesting and instructive. In a specialty, the general knowledge of which has been so limited, as is the case with that to which I have devoted my life, the problem was not an easy one.

To the average medical man, prior to the past decade, the field of psychological medicine, if not a *terra incognita,* was at least a trackless waste, dreaded and almost tabooed. The error and the evil result of this state of affairs are only too palpable.

Insanity is a disease which invades all classes, and from which no one, be he rich or poor, high or low, can claim exemption. It is a disease that involves to the patient himself, his family, and the community at large—a wider range of interests than any other known disorder. To the patient it involves the loss of that faculty which alone distinguishes man from the lower animals; it also, usually, involves the loss of the liberty guaranteed him by our laws, as well as of the control of his business and property; and it may possibly involve the loss of his life through self-destruction. To the family of the patient it involves the spectacle of a loved one with reason dethroned, and the putting away of that loved one into the care of strangers; it involves the stigma which society so cruelly and so unjustly attaches to the taint of insanity; and it often involves the cutting-off of their source of livelihood. To the community at large it involves danger to life and property from the acts of homicidal and dangerous lunatics, and imposes upon it an enormous burden of taxation for the maintenance of a vast and constantly increasing army of insane people.

In view of these facts is it tenable that the study of insanity should so long have been made a special science, a thing apart from the ordinary range of general medicine? To my mind it is not, and no greater advance was ever made in our noble profession than the establishment of the study of mental diseases as a part of the regular medical curriculum. Insanity is as much a bodily disease as phthisis or typhoid fever. The insane action or idea as surely springs from a morbid condition of the brain as a bilious attack springs from a morbid condition of the liver. There is no mystery about it. It is simply a mental manifestation arising from a physical cause, and should form

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as necessary a part of medical knowledge as chest or abdominal disease. I, myself, believe that the separation, in bygone days, of one organ, and that the highest, the brain, from general medical study has been one of the most fruitful causes of the overcrowding in our insane hospitals, because, thereby, incipient insanity has been too often suffered to degenerate into confirmed lunacy from lack of early appreciation of the true mental state. The curability of mental disorder hinges, in great measure, upon its early treatment, and with all medical men possessing a fair knowledge of its prophylaxis and premonitory symptoms, insanity would meet an important check to its future progress. The sentinel who is at every man's door, be he rich or poor, the general practitioner, is the one who should be able to foresee the coming attack and to take steps to avert it, or, if this be impossible, to mitigate its evils as much as possible.

In the latter connexion, it has occurred to me that I could not employ the evening more profitably than by calling to mind some of the duties of the family physician with regard to the admission of lunatics to asylums, since it is now so generally the custom to relegate the sick in mind to institutions set apart for their care and cure.

In no disease has the family physician weightier responsibilities than in insanity. On him depend the diagnosis of a person's insanity, the advisement as to home or hospital treatment, and, should the latter be decided upon, the certification of the mental condition and the supplying of information to guide the hospital physicians in the treatment of the case. It is on these points I shall dwell to-night, believing that they will be of more practical value than is to be gained by the discussion of any one form of mental disorder.

Of the diagnosis of insanity I shall endeavour to give some hints when speaking of certification, and for the present will premise that the physician has convinced himself of a patient's lunacy. This done, the next question to decide is, whether home or hospital treatment is the most advisable. The decision on this point hinges upon the character of the case and the means of the relatives. In cases of acute maniacal excitement the question is usually easily answered as there are few families that are in a condition, financial or otherwise, to care for an acute maniac. The same applies to cases of agitated melancholia, in fact, to any case where there is marked mental or motor excitement. In cases of paranoia with delusions of persecution, and in those of epileptic insanity attended with outbreaks of fury, the risk of a tragedy is so great that I would strongly advise their being placed in a hospital with the least possible delay. But even in the mildest

forms of insanity, separation from the immediate friends and accustomed surroundings is in most instances absolutely necessary as a preliminary step to further treatment. If a patient belongs to the poor or middle classes, isolation can only be satisfactorily obtained in an asylum. Among the rich, the needed seclusion may be successfully secured in their own homes, or by means of travel with a suitable nurse, companion or physician. Personally, however, I am of the opinion that the vast majority of cases of insanity, irrespective of the form of the disease, have a far better prospect of recovery in a well-managed hospital for the insane than they have at home, no matter how ample the means of their friends may be. The mere fact that he is kept in contiguity to his accustomed surroundings is a drawback to a patient, while the complete change from home life to hospital life, with the discipline and routine of the latter, are likely to be of the greatest benefit, besides greatly lessening the risk of suicide, homicide, or other unfortunate occurrences. An important consideration too often lost sight of, but one which should always be well weighed, is this,—the ill effect that continued association with an insane person is likely to have upon other members of the family, especially if they are predisposed to mental disorder.

Admitting, however, that there are occasional cases of insanity for which home treatment may be safely recommended, a few words on the subject of treatment for mental ailments may not be out of place. While each case must be treated individually, there is much common ground, and one of the first points to bear in mind is the fact that in the early stages of acute cases, whether of melancholia or mania, rest is often necessary. This rest should be made as absolute as possible during the first couple of weeks, for which purpose the patient should be confined to bed at least the greater part of the time. When this is done, tissue metabolism must be encouraged by strict attention to diet, and the substitution of some passive artificial exercise for the active movements of the body. The latter indication is best accomplished by massage. As regards diet, the selection should be made from the point of view of easy digestibility, and foremost in this regard stands milk and its various preparations. It is to be given frequently and in considerable quantity, in fact, overfeeding, if I may use the expression, is a cardinal principle in the treatment of any mental disease in which exhaustion is a feature, it being a well known fact that maniacs will assimilate many times the amount of food needed in health. Certain cases require feeding every hour or every two hours. Raw or soft-boiled eggs, raw or rare beef, specially prepared cereals,

and sometimes green vegetables and fruits may be added to the diet. Stimulants are but very occasionally indicated, and only in dangerously exhausting conditions, such as acute delirious mania. Insane patients, through delusion, often refuse to take the food offered them, but the tactful, persistent nurse,—and recollect that a nurse or two, qualified for the special work, is a *sine qua non* for home treatment,—can generally induce them to swallow sufficient liquid food. When, however, she fails, forced feeding by means of the stomach or nasal tube must be resorted to without undue delay.

Insomnia is often one of the most troublesome symptoms we have to combat in mental disorders, patients sometimes remaining abnormally wakeful for days unless steps are taken to relieve them. To procure sleep there is no panacea, and first we should try to woo it by measures intrinsically harmless. There is no sleep so refreshing as natural sleep, a fact well recognized by that master-student of nature, Shakespeare, who makes Iago say of Othello,—

> "Not poppy, nor mandragora,
> Nor all the drowsy syrups of the world,
> Shall ever medicine thee to that sweet sleep
> Which thou ow'dst yesterday."

For this reason drugs should be a last resort. Open air exercise, pushed to the point of pleasant muscular fatigue, such as an hour's walk or a drive, when strict confinement to bed is not deemed advisable, will often quiet a patient and secure refreshing slumber, thus obviating a recourse to the pharmacopœia. In many cases sleep can be procured by a prolonged warm bath. It is best given just before bedtime, with water at a temperature of about 90, and should last from twenty minutes to half an hour. Often the hot wet pack is even more effectual than the ordinary hot bath. In some cases when simple irritability produces insomnia, a stimulant will induce sleep, and it has been customary with me to first try a sleepless patient with a hot bath followed by a night-cap of hot Scotch, often with surprisingly good results.

Should these simple means fail, drugs must be resorted to, but in their use we must beware that nature does not come to depend upon them. Of these one of the best is sulfonal, alone or combined with trional. The great objection urged against sulfonal is the slowness of its action, for which reason, if administered alone, it should be given about four or five o'clock in the afternoon. This objection is greatly lessened by its combination with trional, which is more speedy in its effects. Ten or twelve grains of each given in gruel, milk or water, as hot as it can be swallowed, at bedtime, will often induce rapid and

prolonged slumber. Another excellent hypnotic, though much less used than formerly, is chloral. It is most applicable to acute hallucinatory conditions, and the insanities connected with epilepsy and chorea. Hyoscine is indicated when there is motor excitement, and has the advantage that it is prompt in its action, and can be administered hypodermically. Paraldehyde is highly extolled by some authorities, and, having no bad effect upon the heart or circulation, can be safely administered in cases where sulfonal, chloral and hyoscine are contra-indicated. In melancholia and alcoholic insanity, opium and its alkaloids are valuable. As a rule, however, and especially in acute maniacal conditions, they are useless and harmful, impairing digestion, and thus combating the effects we most desire. Either morphine or codein may be given hypodermically, but the latter, I think, is preferable.

In the use of any of these drugs it is well to intermit them from time to time to see if the patient cannot sleep without them. Frequently, two or three doses having produced their effects, nature will take care of itself, and the patient rest without their use. It is advisable also to change the hypnotic used after a few doses, so that the patient will not become too much accustomed to any one drug. In this way we lessen the risk of forming the drug habit, and avoid the evil of setting up a tolerance which will require constantly increased doses to produce the usual effect. I need hardly say that in no case should the patient be told the name of the drug employed.

What I have said with regard to hypnotics leads naturally to the use of sedatives to quiet excitement during waking hours. Such drugs have, as a rule, no specially curative effect in themselves, and it is generally far better to endure a patient's noise, and to allow a certain amount of action, rather than to repress it unduly so long as the patient is in good physical condition. When, however, there is marked exhaustion, we have sometimes to resort to them, and the drugs most commonly employed are hyoscine, duboisin, and conium.

Of late years it has come to be a well recognized fact that auto-intoxication from the absorption of poisonous substances generated in the alimentary canal by putrefactive and fermentative processes is a factor in the production of some cases of insanity. For this reason it is generally advisable to give an enema first thing when called to see a patient mentally afflicted, and, if auto-intoxication be suspected, to follow this by the administration of intestinal antiseptics, such as betanaphthol or salol. The abundant use of water is a necessary adjunct to the use of both these drugs, and the patient should drink a tumblerful of hot water several times daily on an empty stomach.

Aside from the strictly medical treatment, a large number of remedial measures are demanded in caring for the insane, and one of the most important of these is to guard against the suicidal tendency so common in many forms of insanity. Patients with such tendencies must be carefully watched night and day, and the physician should himself see to the guarding of windows, and the removal of hooks, scissors, knives, drugs, strings, pins, matches, etc.— in short, of all instruments and means which could in any way be utilized for a suicidal purpose. In hospitals, one of the first precautions taken in the case of suicidal patients is, that they shall not be allowed to sleep in a single room. Deliberate suicide is rarely undertaken in the presence of others, hence the object of placing this class of patients in associated dormitories. The medical attendant cannot be too careful in warning friends and nurses of the possibility of self-destruction, and in his efforts to guard against it, because the ingenuity displayed by the insane to this end is something marvellous. A patient has been known to strangle himself with a cord while lying in bed under the eye of a nurse; another to try to sever an artery, under the bedclothes, with a small piece broken from a china plate; and yet another to break a tumbler and try to swallow the pieces. One patient of my own suicided by standing his bedstead on end and hanging himself with a sheet from the foot of it, while a second effected her purpose by cramming the corner of a sheet down her throat until suffocated. The only safe rule in dealing with the insane is to regard all cases as possibly suicidal, and all cases of melancholia as almost certainly more or less so.

Moral treatment, or, as it is sometimes called, psychic treatment or psychotherapy, is among the most important means of benefit in mental alienation. It comprises not only employment and amusement, but all methods and devices that can affect the patient's condition other than the ordinary medical means adopted; in short, all things that tend to lift the patient out of his self-absorption and engender new trains of thought. To describe them is impossible, since they include all that is embraced under the comprehensive term "asylum management." They can rarely be enforced outside the wall of an institution.

Let me next call attention to what I consider to be one of the most important subjects that can engross a physician's attention, namely, the proper filling out of the forms used in committing a patient to an asylum. Had you seen but a tithe of the mistakes made by the profession in applying for the admission of lunatics and the preparation of certificates, that I have done, you would not wonder at my laying much stress on the subject. I have noticed, too, that the mistakes

are not always made by the junior members of the profession; the senior are almost equally guilty. Doubtless the latter would plead in extenuation that their attention is so taken up by their general practice and other duties that they are unable to give the necessary time. I cannot, however, disabuse my mind of the impression that with many of them the errors made are due, in great measure, to simple ignorance or carelessness. Be that as it may, this fact remains, the physician who expects remuneration for his services should give full value for his fee, and he can only do this by bearing in mind the old adage, "Whatever is worth doing is worth doing well." The hand of Justice sets safeguards about the liberty of the citizen, and forbids his being put under restraint without exact compliance with certain legal formalities. It may seem a waste of time to tell you this, but many medical men act as if unaware of the fact, and insane persons are from time to time landed at asylum doors with only an informal line from some sapient physician requesting their admission. These wiseacres seem to be ignorant of the fact that it is felony to detain any person in an asylum except under definite legal conditions, and have no hesitation in asking asylum officials to lay themselves open to a criminal prosecution. Nay, more, they are occasionally deeply offended because they will not do so. The medical superintendent of a hospital does not make the laws of the land, neither can he alter or amend them. His duty lies in seeing that those relating to the admission of patients to his institution are strictly complied with.

In almost every country, in every state of the Union, and in every province of the Dominion, the laws as to the committal of lunatics differ more or less. In all cases, however, the general guiding principles are very similar. The wise medical man, let him locate where he may, will not fail to immediately read up the laws of that country in regard to the admission of lunatics to asylums. He knows not the moment he may be called upon to recommend the sending of a patient to a hospital, and, although admission thereto is really more of a legal than a medical procedure, it generally falls to the lot of the family physician to oversee it. If through his ignorance there be any hitch in the proceedings, rest assured the friends of the patient will not fail to resent it, and the doctor's practice will suffer accordingly. In all cases, whatever else be added or omitted, a medical certificate is always required, and with it some history of the patient. The only exception to this rule is in the case of voluntary admissions, that is where persons cognizant of their condition ask of their own accord to be received as patients. This mode of procedure has been in vogue

in Scotland, Massachusetts, and a few other places for a number of years, and is now permitted, in the case of private patients, in the Province of Quebec. It, of course, necessitates that the patient must be in such a state of mind as to admit of his understanding the nature of his act.

The friends of an insane person having accepted a physician's advice to adopt hospital treatment for him, the proper blank forms should be procured at once from the proper authorities, usually the superintendent of the asylum to which it is proposed to send the patient. In applying for these forms, whether by letter or telegram, such particulars should be sent as the patient's name, sex and age, the duration of the attack, and whether he is dangerous to himself or others. The reason for this is that there might be room in a hospital for a man but not for a woman, or *vice versa*; again, hospitals, especially when crowded, always give the preference to young, acute cases and those dangerous to life and property. In the Province of Quebec it must, in addition, be stated whether the forms required are for a public or a private patient, because the papers differ materially in the two cases.

The various blanks are, as a rule, self-explanatory, and require but reasonable care to fill them up correctly. Nevertheless, innumerable mistakes are made. A physician is chiefly concerned with the medical certificates and the history of the case, but he will find it to his interest, as well as that of his patient, to be familiar with all the forms, so that he may be able to give advice as to the filling of them. Ignorance of the law is no excuse for a breach of it, and a mistake made through ignorance will not render a paper valid. The physician must recollect that in filling up the several forms it is not a matter in which he or the friends may please themselves as to what they say or leave unsaid. The law lays down the exact form that must be followed, often even defines the exact wording that must be used, and any deviation from this renders the paper illegal, and, therefore, valueless. For example, if the law states that the word lunatic must be used in filling up a space left blank for the purpose, a man is not justified in inserting therein, "is of unsound mind." A warning that I always give to my students when lecturing at McGill may not be out of place here. It is this. Never put your pen to a paper until you have first carefully read over every word of it. Many of the mistakes made, I am convinced, arise through people trying to fill up forms as they read them, that is, without having previously read them over to get a correct idea of their contents and of what is required of them in the filling.

The papers when filled should be returned to the hospital that the officials there may satisfy themselves of their correctness, and of the suitability of the case for reception. If the case be an extremely urgent one, the patient may be taken to the hospital along with the documents, but, if this be done, it is at the risk of his custodians, as there is always the possibility of his being refused admission because of informality in the papers, or for other reason. Over and over patients and papers have been brought to me together, and, owing to defects in some of the forms, I have been obliged to refuse to receive the patient, thus putting the friends to the trouble and expense of taking him away until the necessary corrections were made. Sometimes dates have been omitted, sometimes signatures have been wanting, sometimes a paper has not been sworn to, and sometimes vital questions have been left unanswered. Consequently, it is always well to have the papers accepted beforehand, and permission to convey the patient to the hospital granted.

Now as regards medical certificates of lunacy and those empowered to sign them. In the Province of Quebec, only physicians who are registered, and actually engaged in practice are qualified to sign such. In other words, a retired physician, even though registered, could not do so. In Ontario the law only demands that the physician shall be registered in that province. Again, in Quebec, the signing physician must not be related, within the third degree, either to the applicant, the patient, or the proprietors of the asylum,— that is, he must not be a nearer relative to any of these than a second cousin; moreover, in the case of private patients, where two certificates are required, the signing physicians can be neither partners, brothers, nor father and son. In Ontario the law makes no such stipulation, although, I think, it certainly should do so. Curiously enough, in the Quebec law there is no provision against a husband and wife, when both are members of the medical profession, signing the two certificates, provided they be not partners in business.

In filling out a certificate, physicians often lose sight of the fact that the printed portion is fixed by law, and requires as particular attention as any other part. Here both the examiner and the patient must be designated precisely, and the date of examination correctly inserted. These seemingly slight requirements are of grave importance. For instance, in Quebec the legal name of a woman, even though married, is her maiden name. This fact, based on French law, is overlooked by or unknown to eight out of every ten English speaking doctors. In consequence, if a woman's maiden name has been Mary Smith and

she has married a man named John Jones, a certificate in her case should be filled in thus:—Mary Smith, wife or widow, as the case may be, of John Jones. Throughout the rest of the Dominion, and in the United States, where the statutes are based on English law, a married woman's legal name is that of her husband, in which case her name in a certificate would simply be filled in as Mary Jones. The necessity for correctly filling in the date hinges on the fact that the law always prescribes the period, prior to admission to an asylum, within which the examination on which the patient is confined must be made. Hence it is of the highest moment that the date of examination be given correctly, in order that the hospital authorities may verify this. In Quebec the term is fixed at twenty days, in Ontario at three months, the latter period being, in my opinion, much too long.

In the body of the certificate must be entered the grounds on which a person is judged insane and suitable for confinement. Here it is that so many certificates fall short. The physician, it must be borne in mind, is not expected to diagnose the form of insanity from which a patient is suffering, merely to set forth such facts as will convince anyone reading them that he is insane and a proper case for confinement. To procure these facts for insertion necessitates an examination of the patient, because the basis of proof must be obtained by personal observation of the patient on the date specified in the certificate. The opinions of others, though often very valuable, can only be introduced secondarily, and most certificates provide a special blank space for the introduction of such evidence. It is not sufficient to say that a patient is insane. The law distinctly says that one must give the details, that is, specify the facts, upon which he bases his opinion of the patient's insanity. For example, merely to say, "Saw her at home and found her insane," or, "He is generally irrational in all his actions," examples of certificates I have had sent me, will not fill the bill, and would, if the makers had to defend them in court, give the prosecution a veritable walk-over.

The diagnosis of mental derangement is very different from that of ordinary bodily disease, and often much more difficult. In cases of ordinary disease patients go to see a doctor, or ask to have one sent for, and do every thing they can to facilitate his inquiries. In mental disorder the patient is often very averse to seeing a physician, and exceedingly reserved toward him; or is, in consequence of his insanity, incapable of giving, or unwilling to furnish, exact information. The wise physician will learn all he can, from outside sources, of his patient's past and present history before interviewing him, but information

so gained must not be allowed to bias his mind. It is only to be used as an aid to his examination, and is to be taken only as confirmatory of what he himself may observe. If he omit to ascertain anything before visiting the patient, he should not seek to remedy the omission by asking the question in his presence, unless it be something he is perfectly willing he should hear. In connection with the obtaining of outside evidence, I might say that it is sometimes of value to inspect a patient's letters or other writings and compare them with those written before the attack began, because such documents often prove fruitful sources of information. This rule is especially useful in doubtful cases. Many lunatics who are very reticent in conversation will, in what they write, reveal the morbid ideas under which they labour. The whole style of a letter, the signature and direction, may show the predominant fancy in mania and melancholia, or betray the failure of mental power characteristic of dementia. General paretics leave out letters, words or syllables, or they misplace them. The crossing out of many words indicates a difficulty in thinking, while the frequent underlining of words and addition of numerous notes of exclamation, points to an abnormally exaggerated process of thought.

In most countries the law demands that the examination on which a physician bases his certificate must be made separately from any other medical practitioner. This should be remembered, because I have known cases where consulting physicians founded their evidence of mental disorder on the evidence elicited during the consultation. If, therefore, two physicians make an examination together for the purpose of consultation, they must, ere either of them can legally sign a certificate, again visit the patient, examine him separately, and elicit afresh the information to be inserted. Otherwise, if at any future time, the alleged lunatic were to bring an action for false imprisonment, and the signer of the certificate was examined under oath, the document would probably be declared invalid for neglect of this precaution, and the maker, in all likelihood, brought in for damages.

In confronting a patient it is best to do so undisguised. Lunatics are, as I have said, often averse to seeing a doctor, for which reason friends are prone to advise a resort to stratagem, one of the commonest being that the examiner should be introduced to the patient as a lawyer, clergyman, merchant, or the like. This is a grievous mistake, because in such assumed character he has no fair pretext for discussing the patient's state of health with him, and questions he may wish to put are liable to be regarded as impertinent or absurd. Many of the insane are even preternaturally sharp and able to see through the most cun-

ningly devised plans. They are also extremely mistrustful, and once let them suspect they are being deceived may take refuge in the most obstinate silence. Honesty should be the rule here as elsewhere, and my advice is that the examiner should go in his own character of physician, and as nothing else. As a doctor he has a reason, whether the patient admits it or not, for cross-questioning him on all points. It is not necessary to blurt out the fact that the visit is paid for the purpose of certifying to his insanity, though one should not be afraid to say so if asked. It will generally be sufficient to say that he has been requested by his friends to inquire about his health, which they fear is not good. Such a statement will enable him to enter upon a physical examination of the patient, a proceeding that will disarm his suspicions, and during which he can study his mental state as reflected in his appearance, actions, and conversation.

As a rule there is little trouble in discovering the insanity of the melancholiac or the maniac. It is a different thing, however, when we have to deal with the suspicious paranoiac, with a patient whose insanity is displayed in acts rather than by words, or with one who is merely weak-minded. With such cases, one may converse for a long time and not be able to detect any symptoms of mental obliquity. Far better to begin with a physical examination, and, while making it, bring the conversation around to what you have been told are the false ideas or insane acts. It is then one sees the advantage of appearing in his true character of doctor. It gives one the right to question the patient upon any and all things connected with his daily existence. He may assert that you are not his medical adviser, that you have no business to question him, and that he wants none of your advice; but you can assure him that you have been requested by his family to see him, they being alarmed at his symptoms. In his justification or explanation he will generally open up the real state of his mind. It may happen, however, that a patient, without keeping absolute silence, which silence in itself would be a strong evidence of insanity, will tell you nothing. Such answers as he does give are correct and to the point, but he will not converse concerning himself. In these cases it is well to be politely persistent and prolong the examination, even to the extent of tiring the patient, because many patients will, when fatigued, finally yield to the friendly insistence of the examiner. If, spite of such persistence, you fail in your object, there is nothing for it but to take your leave and see the patient another day when perchance he may be in a more conversational mood.

When a patient is said to have committed some outrageous or peculiar act, it is often a good plan in examining him to come to the point

at once by asking him if the statement is true. If he admits it, ask his reasons therefor. They will generally be found inadequate or absurd. If he denies it, confront him with the evidence, and so force him to give his reasons.

Although insanity may exist without delusions, yet there can be no doubt of its presence when they do exist; hence it is always satisfactory to discover and record them if present. In his search a physician should be careful to satisfy himself that what a patient affirms really is a delusion. Probable things may be delusions, and highly improbable things may not be. Some statements admit of no doubt; for example, when a patient says that he has no blood in his body, or that he is a king, etc. Many assertions, however, are only known to be delusions from outside information. A very common delusion, especially in cases of alcoholic insanity, is for a man to believe his wife unfaithful. But if this be all one can discover, and you have only the patient's word on the one hand and his wife's on the other, are you necessarily to believe her statement that he is labouring under a delusion. Very likely from the man's mode of asserting the fact and the grounds he gives for his belief, you may be able to assure yourself that it is the assertion of a lunatic. For instance, he may be unable to give any grounds for his belief, or may state the unfaithfulness to have occurred at a time or in a way manifestly impossible. Again, a man says he is wealthy, or has been reduced to poverty; such assertions can only be verified as delusions by outside evidence. When, therefore, a patient holds a belief which on the face of it might or might not be a delusion, in making out a certificate one should always add, after stating the belief, some such words as, "which I know to be a delusion," or, "which is contrary to fact."

A point always to be weighed in the examination of a patient is whether he is an ignorant or an educated person. Peculiar ideas in the former may not be delusions, while in the latter they are. I have met many illiterate persons, perfectly sane, who were firm believers in fairies and witchcraft, and who would tell marvellous stories of what they had seen and heard. Such beliefs, in such persons, are not to be regarded as delusions, but as errors resulting from want of education. In like manner care must be taken to make due allowance for a patient's station in life. This is especially true in cases where we have to base an opinion on violence of conduct and language. If a gentleman openly uses vulgar and obscene language we may reasonably question his sanity; but if one in the lower walks of life calls his wife filthy names, or threatens to beat her, it does not follow that he is in-

sane. The fact of a lady talking lasciviously in public would be good evidence of insanity, not so in the case of a prostitute.

Cases of mental disorder where no delusions exist and where the patient's acts are not manifestly due to insanity are the most difficult of all to diagnose. One may be called in to see a man whose only symptoms are a change in character, habits and conduct. Everything then will depend upon the opportunities you may have had to recognize the change in the individual. If one can say, of his own knowledge, that a patient has completely altered in a comparatively short time, without obvious or adequate cause, it is perhaps the strongest assertion he can make in support of the opinion that he is insane.

A certificate is strengthened in proportion to the care shown in its construction. One should be careful, therefore, in giving the facts to avoid stating what is valueless, and equally careful to omit nothing of value, saying it in as precise but brief a manner as possible. Statements that go to prove sanity should be carefully excluded, yet frequently we see such phrases as, "He has no delusions," "He is not dangerous," or, "He talks quickly but sanely." All such statements tend to show that the patient is sane, not insane.

Let me here cite some samples of certificates that I have been obliged to refuse. "From his peculiar actions and conversation, being constantly talking on subjects that persons in a proper state of mind would not do." If some of the peculiar actions had been described, and some of the conversation recorded, this certificate might have passed muster. Another read simply, "Manner and appearance." The manner and appearance were not described, and no fact whatever pointing to insanity mentioned. Another equally valueless, and almost equally brief, read, "Violent fits of insanity. Has been insane before." This certificate having been refused, the physician filled out another as follows: "Very violent, talking very violently and saying he was not insane." Needless to say, this was also rejected, and a rather sharp letter sent to the doctor. It had the desired effect, and brought me the following excellent certificate, "When examined he talked boisterously, walking up and down the room, kicking over the chairs. Said because the Lord had appointed him to judge the world his people called him crazy, but he was straight as I was, and he would prove it to their sorrow by making an end of some of them." Had the doctor furnished this in the first place, as he should and evidently could have done, he would have avoided the appearance of ignorance, I would have been saved a great deal of trouble, the friends would have been saved expense, and the patient would have been admitted several days sooner.

In one certificate from a prominent medical man the only information given was contained in the two words, "Puerperal mania." Perhaps, however, the climax was reached in a certificate wherein the only fact alleged to prove unsoundness of mind was, "He tells lies." I fear were all those who stretch the truth to be "run in" we would have to vastly increase our asylum capacity. For this patient the doctor could easily have filled out a good certificate had he taken at first the time and care that he was obliged to do later. True, the proof of mental unsoundness was best seen in the patient's telling lies, but they were insane lies, in other words, delusions. For example, he averred that he had never been in Ireland, whereas he was born and brought up there; he said he did not know the gentleman who was his guardian, although he had been living with him for two years; and he persisted that his name was Mountain while everyone knew that it was in reality something quite different.

Before quitting the subject of certificates I would say, in his examination of a patient a physician should never be satisfied with the detection of one decided symptom of mental unsoundness, such as a well-marked delusion, to the exclusion of all others. On the contrary, he should examine the patient thoroughly, and, at the least, report all the principal symptoms. A certificate depending on the statement of a single delusion, as a proof of insanity, would, in an important trial, run a possible chance of being disputed, whereas if fully made out it would prevent all cavilling. Again, in his examination, he should always be careful to see that the patient has fair play. He should remember that he is examining him to satisfy himself as to the real state of his mind, not to trip him up and extort what will sound well in a certificate. We all know how readily a clever lawyer can bewilder the average witness in cross-examination. In like manner, it is no great task to so puzzle an inferior intellect as to make a sane man seem really wrong in his mind.

The filling in of the form of history which accompanies the certificate also usually falls to the medical examiner. While all the questions included in this form are valuable, some of them are especially so as bearing on the treatment and prognosis in the case, and no pains should be spared to answer them correctly and fully. It is to these that I would now call attention.

The questions relating to how and when the disease first manifested itself, and the number and nature of former attacks, if any, are of great moment as regards prognosis, yet it is quite the exception to get reliable information on these points. Friends are prone to make the

duration of the illness very short, whereas it may turn out on inquiry that the patient has really been insane for a long time, though possibly excited or dangerous for only a few days or weeks. The insidious approach of the disorder often causes its earliest symptoms to be overlooked or ignored, so that close questioning, on the part of the physician, will be necessary to get at the real state of the case. That dire form of mental disorder, general paresis, for example, may in its incipiency so closely simulate neurasthenia as hardly to be distinguished from it.

Hallucinations, especially those of hearing, should always be mentioned, if they exist, as a warning to those who are to take charge of the case, because such hallucinations taking the form of "voices" often incite to crime.

A correct reply to the queries regarding suicide and homicide may also go far toward saving life, yet too often they are answered with the much abused and easily written "No." If there be any doubt on these points, it is far better to state the suspicion than to give a direct negative. In answering them the physician should not only state that patients have, or have not, injured themselves or others, and how, but also say whether they are really suicidal or homicidal. In other words, care should be taken not to confound actions which are the result of delusions with actions prompted by true suicidal or homicidal intent. To do this I find is a very common error amongst medical men. A person may refuse food believing it to be poisoned. In such a case there is no true attempt at suicide. On the other hand there is a genuine attempt at self-destruction if the patient refuses to eat through the wish to die of starvation. Again, a patient may jump from a window in order to escape from imaginary enemies. Here the man has not attempted suicide in the true sense of the word, as would be the case had he wilfully thrown himself out in order to take his own life. It is much the same as regards homicide. The patient who kills an attendant trying to prevent his escape is not a homicide in the same sense as the one who kills him because he thinks he is divinely inspired to do so. The intention to take one's own life, or the life of another, is what constitutes suicide and homicide in the correct sense of these words.

Then there is the question of heredity, about which such lies are told as must make the father of them hilarious. No physician can be long in practice without being brought face to face with the question of what constitutes the code of morality with regard to the truthful answering of interrogations concerning family history. I do not

for a moment mean to insinuate that all relatives will come to him with their minds fully made up either to evade these queries, or tell absolute falsehoods; but I do say, that he will find it no easy matter to get a full and truthful family history of many of the cases brought to him. People are very loath to admit the existence of any hereditary taint. Why brain-disease should be regarded as more disgraceful than disease of the lungs or any other organ of the body, or why the fact of insanity being in a family should be looked upon by the public as tantamount to an acknowledgment of criminality, I for the life of me cannot see. Such, however, is the case, and, until the masses are educated out of such erroneous beliefs, friends will continue to lie about their antecedents most unblushingly. Often I have known cases where the relatives have positively asserted that there was no trace whatever of insanity in their family history, and often I have afterwards discovered that it had been well marked for generations.

In the matter of heredity, the wise physician will inquire from other sources than the relatives, and not only note insanity in the ancestry, but also eccentricity, epilepsy, hysteria, and alcoholism, because these diseases are predisposing causes second only to actual mental disorder.

A doctor has also to delve deeply to get at the true cause of insanity, and is apt, to save himself trouble, to say, "Unknown." It is a very frequent thing for asylum officials to be asked the cause of insanity, and relatives can scarcely be made to grasp the fact that it is upon themselves and the family physician that the hospital authorities must in great measure rely to discover it. The statements of friends are usually vague and often shed but little light on the true cause of the disorder. Sometimes a wholly irrelevant circumstance, which happens to precede the break-down, is assigned as the exciting cause; and quite commonly certain symptoms, which the patient displays in the period of emotional disturbance that goes before the complete loss of self-control, are wrongly taken as the exciting cause instead of what they really are, mere incidents of it. This is notably true as regards religious excitement. Care should also be taken not to snatch at effect for cause, as is too commonly done. Masturbation and intemperance are more frequently the consequence of a diseased brain than physicians state.

There are a number of other points upon which I might touch respecting the examination of lunatics and their commitment to asylums, but I fear I have already trespassed too long upon your patience. What I have said may seem trivial to some of you, who would perhaps have preferred that I should have taken up some of the abstruse pro-

blems of psychiatry, such as Ford Robertson's recent and praiseworthy researches into the bacillian origin of general paresis. I trust, however, that my words may not be entirely fruitless, for, as Milton expresses it,—

> "Not to know at large of things remote
> From use, obscure and subtle, but to know
> That which before us lies in daily life,
> Is the prime wisdom; what is more is fume
> Or emptiness, or fond impertinence,
> And renders us in things that most concern,
> Unpractised, unprepared, and still to learn."

TWO CASES OF MILIARY TUBERCLE OF THE CHORIOID.

BY

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It may be well to state at the outset that there are two distinct varieties of tubercle of the chorioid. First, the chronic tubercle or tubercular tumour which is usually secondary to chronic tubercular disease in other parts of the body, though in rare cases it may be primary in the eye, and which rapidly destroys that organ, and, second, the miliary tubercle which is found in the chorioid in cases of general miliary tuberculosis and causes no symptoms referable to the eye. It is this latter form alone that we shall consider.

According to Graef, Manz in 1858 was the first to realize that the nodules found in the chorioid in cases of general miliary tuberculosis were of the same nature as the miliary tubercles found in the other organs. His observations were made on post mortem material only. Nine years later Cohnheim, from a series of eighteen autopsies in cases of miliary tubercle in which the chorioid was found to be involved in every one, came to the conclusion that the occurrence of miliary tubercles in the chorioid, in cases of general miliary tuberculosis, was not to be regarded as being a medical curiosity, but as a common if not constant condition in such cases. Cohnheim's work has been confirmed by other investigators, although the percentage of cases, in which the chorioid was found to be involved, was not so large. Litten, for example, found chorioidal tubercles in 39 cases out of 52, i.e. in 75 per cent.

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Although Ed. Jager of Vienna described a case in which he discovered tubercles in the chorioid during life by means of the ophthalmoscope in 1855 this was regarded as something extremely uncommon, and it was not until after Cohnheim's work became widely known that reports of the ophthalmoscopic appearances in such cases began to appear more frequently. Gowers, in the third edition of his Medical Ophthalmoscopy published in 1890, says in reference to chorioidal tubercle, "in this Country they appear to be comparatively rare." Even to-day it is not generally known to Clinicians that they have in the ophthalmoscopist an ally who can, in many doubtful cases, give them information which will enable them to make an absolute diagnosis between miliary tubercle and other febrile conditions such as typhoid fever, etc. Ophthalmoscopally miliary tubercles appear as rounded white spots which stand out sharply from the red background of the fundus, and are seen to lie at a deeper level than the retinal vessels. They are usually few in number, from three to six on the average. In some cases only one is seen, while as many as fifty have been observed in rare cases (Cohnheim). The tubercles are of small size, from one-quarter to three-quarters the diameter of the optic papilla (Gowers). Both eyes are, as a rule, affected. The tubercles lie, almost invariably, near the posterior pole of the eye, and hence, unless they are placed very deeply in the chorioid, they should be readily seen in every case where they are present, for the media are always clear. That such cases are not observed more frequently is mainly because the chorioidal tubercles cause no symptoms, and if no cerebral symptoms are present it does not occur to the Clinician to have the eyes examined. Again, according to Stricker, tubercles may develop in from twelve to twenty-four hours, so that repeated examination is necessary to exclude them.

A negative observation is of no value, but a positive finding enables one to diagnose general miliary tuberculosis. From the point of prognosis, too, a positive finding is of great value, since the chances of recovery in miliary tuberculosis are exceedingly slim.

A short account of two cases, which were seen at the Montreal General Hospital during the past few months, will prove even more convincing than the foregoing statements.

Case I.—On March 12th, 1906, E. B., a farmer, 33 years of age, was admitted to the Medical Ward under Doctor Finley, complaining of shortness of breath and cough. The case was diagnosed pleurisy with effusion of the right side, and this diagnosis was confirmed by the aspiration of a considerable quantity of fluid from the pleural cavity on the following day. Fluid was again aspirated on the 17th of March

and on the 25th of April. Doctor Duval was unable to find tubercle bacilli in any of these three samples of pleural fluid, and a similar negative result was obtained on examination of fluid from a lumbar puncture. The sputum was repeatedly examined for tubercle bacilli without success. On April 27th a guinea pig was inoculated with some of the pleural fluid, and when killed on May 23rd showed definite signs of tuberculosis. On May 25th the patient began to show signs of cerebral irritation, and for this reason I was asked to examine the eyes to see if tubercles could be seen. On May 28th I examined the eyes with the following result,—Media clear in both eyes, optic discs normal. In the inferior nasal quadrant of the left fundus two small white rounded masses could be seen in the chorioid. None could be found in the right fundus. Diagnosis, miliary tubercle of the chorioid, left eye. The patient died on June 4th with pronounced symptoms of meningitis. No post mortem examination could be obtained.

Case II.—On September 17th, 1906, H. D. entered the Medical Ward under Doctor Molson. He had well-defined symptoms of typhoid fever, gradual onset, persistent high temperature, rose spots on chest and abdomen, palpable spleen, with a positive Widal reaction. Beyond the fact that the period of elevated temperature was unduly prolonged, the case presented no unusual features until early in November when the patient began to complain of headache and, also, of cough, with scanty expectoration. On this account his lungs were examined on November 5th, and an area of slightly impaired resonance was found at the apex of the right lung. The sputum was examined on the same day for tubercle bacilli with negative result. On November 13th the patient became drowsy and the headache became much more severe. The pulse became slow (60) and the head was turned to the left side. In the course of the next twenty-four hours paralysis of the right half of the body developed. On November 14th I examined the eyes with the following result,—Media clear, both optic nerves normal, in each eye there is a single miliary tubercle. At midnight the patient became unconscious and died at 5 P.M., November 15.

An autopsy was performed on the following day with this result:—Pigmentation of Peyer's Patches; Old adhesive pleuritis; Pyelitis; Miliary tuberculosis of the lung, liver, kidney, meninges and chorioids.

In the first case, while the positive result from the inoculation of the guinea pig proved that the pleurisy was tubercular, yet it was only the finding of miliary tubercles in the chorioid that showed that the patient was suffering from miliary tuberculosis.

In the second case, the miliary tubercles in the chorioid were the first evidence of tubercular infection, and by their discovery it was possible for the clinician to make a diagnosis of general miliary tubercle in a hitherto doubtful condition.

My object in bringing these two cases before you is to show how useful the ophthalmoscopic examination of the eyes may prove to be in cases where there is any reason to suspect miliary tuberculosis.

THE QUALITY OF MILK: WHAT CAN BE DONE TO IMPROVE IT.

BY

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In spite of man's ingenuity it is impossible to elaborate a product which can replace good cow's milk for children's food. The following statistics of infantile mortality show the danger of using impure milk, and the great need of improving its quality.

In the *"Revue d'Hygiène,"* M. Bertillon reports as follows: — In France, during 1902, sixteen per cent. of newly born infants died during the first year. In Germany, the death rate of infants was 22.6 per cent. in 1894, and 27 per cent. in 1901.

Mr. Bockh director of Statistical office in Berlin, states that the average death rate of children fed exclusively on cow's milk was 6.18 times higher than those getting the mother's nursing. In the case of those fed on commercially prepared food the proportion was 14.75 per cent. and infants fed partly on mother's and partly on cow's milk was only 6.56 per cent. higher than those getting only mother's milk. Two million children are yearly born in Germany; one-half or perhaps two-thirds of their number are probably fed artificially, hence 150,000 die every year, victims of impure milk.

During the three wars which resulted in the present German empire 56,000 men were killed. This loss is quite insignificant as compared with that caused by infantile mortality. Allow me to include some more facts concerning infantile mortality in some American cities and also in Montreal: Average infantile mortality in Philadelphia, 32.21 per cent.; Boston, 31.27 per cent.; New York, 36.19 per cent.; Providence, 34.44 per cent.; London, 36.02.

In Montreal the average population in the decade, 1890-1900 was 247,961; the average general mortality during the same period was 6,028; the percentage of mortality of children under 5 years of age

was:—French Canadians, 62.34 per cent.; Catholics of other nationalities, 41.00 per cent.; Protestants, 41.17.

In such American cities, as Boston, New York, Philadelphia, great efforts are made to protect the public against the deleterious effects of poor milk. They are very particular about its richness; in fact, they impose heavy penalties on those who are caught practising adulteration, and examine it closely to ascertain the extent of its bacterial, fæcal and other forms of contamination. In those cities a close control of milkmen and milk producers, is exercised, and the outcome of this good work shows that infantile mortality is about one-half of that in some parts of Montreal.

In 1905, I made 30 bacteriological examinations of the milk sold by milkmen in Montreal and the average result was 987,917 bacteria per cubic centimetre. The maximum number was 4,975,000 and the minimum was 171,429 germs per cubic centimeter.

Last year, 1906, out of forty bacteriological analyses of the same class of milk, ten samples contained more than one million germs per cubic centimetre, the largest number of samples had over 500,000 and only three or four gave a count of less than 100,000 bacteria per cubic centimetre. From the above figures, can we wonder, at the extent of infantile mortality in Montreal.

Intoxication by milk:—Flugge and Lubbert have demonstrated that milk intoxication is not only due to the action of pathogenic germs which may accidentally affect milk, but to that of all micro-organisms which are found in that product, and tend to transform it into a poisonous food, entirely unfit for children and even adults, particularly when such microbes are allowed to grow in large numbers. Hence the great importance of using only fresh milk, cooled at the source of production, and held in that condition until delivery.

It is difficult to know whether milk is fresh or not, because its bacterial contents cannot be ascertained before two days after securing a sample. We could not, therefore, stop at once the sale of suspicious milk, but so soon as we find that the product of such and such a milkman is rich in bacteria, we can prevent the future consumption of that class of milk.

Milk having no special aroma is by some people considered as suspicious. On that account it is often scented with stable flavours and the addition of fæcal matter. The great need of domestic science explains the scandalous abuse of which consumers are the unwilling victims. An immense amount of educational work remains to be done in that respect.

Here legislation is insufficient;—it could not entirely replace the good advice of doctors, of benevolent women, emissaries from humanitarian

societies. It is to such noble and timely interference that the discomfort of poverty is not further increased by sorrow and death in many destitute families.

Falsifications:—"Business is business," and those in the milk trade are there for the purpose of gain only. The less work, and trouble about milking and care of milk the greater the profits. Milkmen are not supposed to look specially after children's health, it is no matter to them how many may die, provided they make money.

There are some honest milkmen, striving to do their best to deliver a fair article; but unfortunately they are the exception. We must protect these against unscrupulous and dishonest competition from careless milk vendors.

For a number of years we have sought to prevent milk adulteration. Instruments and mechanical contrivances of various kinds have been invented in the hope of checking such nefarious practices. One of the first was the lactometer, made for the purpose of determining the density of milk which shows a specific gravity of 1029 to 1033 when unadulterated. If the density stands below 1029, the milk is supposed to have been watered; and again, when it goes above 1033, we conclude that it has been skimmed, unfortunately we relied too much on such means of defence. Milkmen secured lactometers and use them to hide watering. When, after dilution, the density became too low, and the colour of milk too blue, they rectified its appearance by adding to it a quantity of salt and of brown sugar. Salt gave the product its required density, and sugar an apparent richness in cream. Therefore, the lactometer instead of protecting the public became in reality a baneful means of hiding fraudulent manipulation. Later on came the Babcock method of ascertaining the fat contents of milk. At about the same time, it was thought advisable to standardise milk—solids including fat.

Some cities called for 12 per cent. total solids, and 3 per cent. of fat. Montreal now requires 3.25 per cent. of fat as well as 12 per cent. total solids. Hence, all milk which did not contain 3 per cent. of fat was considered adulterated, and any milkman caught selling such a product was liable to a fine, which in my opinion was far too small for those who made a regular practice of watering and skimming, in spite of repeated condemnations.

We ought to be lenient in the case of a first offence. It is known, that in some cases milk is naturally poor in fat. It may contain, say 2.5 per cent., and at the same time, be rich in other solids. Such milk is more valuable for children's food, than the product containing 4 per cent. of fat, but otherwise deficient in caseine, phosphate, etc. The first

product, although a fairly good one, would be condemned, and the second, whilst poor would be approved. With the Babcock test and milk standards, we thought the end of our troubles had come. But milkmen were again equal to the situation, and made use of the new machine to further their own ends. They reasoned and proceeded as follows:—Municipal ordinances call for 3 per cent. of fat, ours contain four per cent. We will simply add to it water enough, to reduce the fatty contents to about 3.25 per cent. and the milk will still stand above municipal requirements.

Bacteriology and milk centrifugation:—Then bacteriology coming to the rescue of hygiene, revealed to the world the great extent of milk pollution, and Boards of Healths at once established bacterial standards condemning milk containing over 100,000 bacteria per cent.

We thought then, that the dishonest milkmen were caught, at last; but no, they at once proceeded to originate other means of evading the law. They began to clarify milk by the use of a centrifugal apparatus running so slowly that cream separation would be incomplete, but in such a way as to leave a large portion of the bacteria amongst impurities adhering to the sides of the machine.

By this treatment, they succeeded in delivering to their customers milk containing less bacteria than the quantities allowed by municipal regulations, but, this product remained unsound on account of its poisonous properties and did not keep any longer than ordinary milk. Hence, during the last 25 years we have striven hard to find some effective means of inducing milkmen to produce and deliver sound, clean milk, and I am sorry to say that so far, the results are far behind our expectation. Each effort, made either by boards of health, or scientific commissions to attain this most desirable object has been checked by similar efforts made by dishonest milkmen, so as to keep a market for the sale of their unclean and adulterated products. I say dishonest, because fortunately we have some honest men in the trade, well-disposed to do justice to consumers, but, unfortunately, their milk sells at the same price as the worst of their neighbours.

Milk dealers are intelligent, they understand that the quality of milk is to them a question of dollars and cents. Let us give them a higher price if needed, but let it be understood that it must not be adulterated, and that it be rich in fat and other required elements.

Like other men they are willing to make an honest living, but when conditions are placed in their way, which makes it impossible to do so, they will likely find some way of keeping their families out of the most pressing needs. They must stand the struggle for life.

It is not my intention to belittle the value of the lactometer, the Babcock machine, and the bacterial tests. They are all useful means of defence, but I simply wish to show the deficiency of these various testing methods, and draw your attention to the fact that dishonest milkmen will, in spite of inspection, succeed in evading the law, and in selling their fraudulent goods.

METHODS OF INSTRUCTION:—Furthermore, I believe that well-understood methods of instructions are the best means of securing desirable improvements. For this purpose, we must have more educated, tactful, and otherwise well-qualified inspectors. Let them be educators instead of policemen.

Milkmen are as a rule hard-working people and their profits are not usually large. Unfortunately, many of them believe that success depends not so much on good milk, but on their ability to hide its defects. Let us show them, that if they spent the same energy in securing good, roomy, well-lighted and ventilated stables, well-fed and clean cows, giving large quantities of good milk, they would secure better financial results for themselves, and help greatly to reduce infantile mortality.

I repeat, that the great battle for good milk must be fought in the field of instructions and of moral suasion, but at the same time we must not neglect such controlling means as science has placed within our reach. They must be used for correction. Yet, a corrective measure is always provoking to mankind and particularly so, when its pressing needs are ignored.

THE PRICE OF MILK AND ITS NUTRITIVE VALUE:—If it is necessary to increase the price of milk a cent or two, to secure a better quality, let us do so; milk is to-day the cheapest of all food considering its nutritive value, compared with the price of fish, meat, eggs, etc. It could, therefore, stand a reasonable increase.

BACTERIOLOGICAL CONTROL AND MILK INSPECTORS:—Bacteriology is to-day one of the best means of control, and we must use it as much as possible. During a recent communication, Dr. Dumbar, an eminent bacteriologist of Dresden, showed that, when proper measures of cleanliness and refrigeration are used, even if transportation requires a few hours, milk at the time of delivery need not contain any more than 20,000 germs per cubic centimetre. Of course, the cans must be properly cleansed, the milk cooled, etc. But in order to bring about such desirable results, we must have a sufficient number of inspectors, known to be qualified.

ORGANISATION AND LEGISLATION:—In order to determine the purity of water, it is not sufficient to know its bacterial contents, we must

inspect its source, its course, and intake. So it should be for milk. The control should start from the source of production, and be followed up step by step until its delivery to the consumer.

So far, Montreal is the only city in the province of Quebec where a milk control exists. This is hardly sufficient. We should, by legislation take the means of extending proper milk supervision all over Canada. This would be a great help even to butter and cheese factories.

I therefore appeal to the good will of all fair-minded and progressive men, to humanitarian societies, pure milk leagues, to legislators and governments for help, in furthering this cause which is that of humanity. We must also provide for education in domestic science, for fear that a part of this good work might be lost. It looks as if infantile mortality was not only the results of impure milk, but also of the irrational education which many mothers have so far received.

In summing up my remarks allow me to make the following suggestions:

1. That Governments be induced to organize proper means of controlling milk supplies, in all parts of Canada, and of preventing the sale of impure milk.

2. That railways be asked to provide refrigerated cars for milk transportation.

3. That all milk producers be requested to secure a permit from municipalities where they intend to sell or ship milk, that their dairies be properly inspected before such a permit be issued, and that a proper control over the business be instituted.

4. That, although it may be preferable to be lenient to some milkmen for first offence, those who refuse to amend should be most severely punished, and driven out of the trade.

5. That the price of milk be increased one or two cents a quart, if it will lead to the production and sale of a clean product.

6. That an active standing commission, composed of medical men, hygienist, prominent business men, and legislators, be appointed for the purpose of suppressing the sale of impure milk, and consequently infantile mortality.

PURULENT CONJUNCTIVITIS: THREE CASES WITH DIFFERENT AETIOLOGICAL FACTORS.

BY

HANFORD McKEE, B.A., M.D.

Montreal.

Case I.—Male, aged 59, seen on the fourth day after his eyes had begun discharging. Both eyes were involved. There was marked swelling of the lids, œdema of the bulbar conjunctiva, with a profuse

purulent discharge,—a well marked picture of gonorrhœal ophthalmia. A smear prepared from the conjunctival pus showed gonococci, chiefly within the leucocytes. A tube of blood agar inoculated gave a pure growth of the gonococcus.

The patient was put to bed and treated as follows: Warm boracic fomentations every half hour; cold compresses of boracic solution constantly. Solution of argyrol, 25 per cent., smeared over conjunctival surfaces three times daily.

The infection was a severe one, and ran a course of over two weeks. Upon the eleventh day there was seen a small point of infiltration at the outer corneo-sclerotic margin of the right eye, but fortunately this did not go on to ulceration, and patient made a perfect recovery.

Case II.—Female, aged 18, seen on the third day of the disease. Both eyes were involved. There was swelling of the lids with œdema of the bulbar conjunctiva, severe photophobia with profuse purulent discharge,—a picture very similar to Case No. 1.

A prepared slide showed the Koch-Weeks bacillus. The treatment ordered was cold compresses of boracic solution constantly, frequent irrigations of the conjunctival sac with warm boracic solution, drops of solution of argyrol, 10 percent., three times daily. The case made rapid progress and on the fifth day following the eyes were so well that treatment was dropped.

Case III.—Female, aged 20. This patient was a nurse to a family which went to the country on Friday, and returned the Monday following. On the Monday morning her eyes became suddenly inflamed, and began discharging. Seen Monday afternoon both eyes were involved. There was marked swelling of the lids with œdema of the conjunctiva and profuse purulent discharge. She complained too of severe pain in the eyes.

A prepared slide showed diplo-bacilli. She was treated with irrigations of the conjunctival sac, with a solution of sulphate of zinc, $\frac{1}{4}$ gr. to the ounce. She made rapid progress and one week later was allowed to assume her duties with the children of the family.

There is nothing new that I have to offer on gonorrhœal ophthalmia—, its clinical picture, with its varying course and results, are well known. I have included this case only for comparison, and in no better way can I convey to you the clinical picture of all three cases than by citing this case of gonorrhœal ophthalmia. It is not generally known that Koch-Weeks, and Morax-Axenfeld conjunctivitis, may go to such extremes. They both vary greatly in their clinical picture. Koch-Weeks conjunctivitis may start with one member of a household as a

mild case of "pink-eye," but going through the house, and increasing in severity as it goes, it becomes a purulent conjunctivitis of a severe type.

Morax-Axenfeld conjunctivitis varies even more widely. The idea that Morax-Axenfeld conjunctivitis is a subacute blepharo-conjunctivitis is, in the majority of cases, a wrong one. This form of conjunctivitis is very prevalent here, and while the classical form of subacute blepharo-conjunctivitis is sometimes seen, in the majority of cases it varies from mild hyperæmia of the conjunctiva to severe purulent conjunctivitis.

The course of the disease in these three cases is worth noting; and with the treatment and results is no less interesting than finding purulent conjunctivitis set up by three such different organisms as the gonococcus, the Koch-Weeks bacillus, and the diplo-bacillus of Morax-Axenfeld.

The name of the Journal of the Association of Military Surgeons has been changed to *The Military Surgeon*. This publication has been in existence for six years, and was the first in the English language devoted especially to military surgery. Probably no other six years in the world's history has yielded more material for the military surgeon. With all appreciation of the trials of an editor, we trust that the next six years will be more meagre.

The Saalfield Publishing Company of Akron, Ohio, announce the completion of the twelve volumes of the Doctor's Recreation Series, of which mention has frequently been made. The twelfth volume is of especial interest, as it is a biographical dictionary of practitioners in all parts of the world.

W. B. Saunders Company, of Philadelphia and London, have just issued a revision of their illustrated catalogue of medical, surgical, and scientific publications. The descriptions of the books are full, and the specimen illustrations are representative of the pictorial feature of the books from which they are taken. The authors listed are men of recognized eminence in every branch and specialty of medicine.

The American Journal of Dermatology and Genito-urinary Diseases has been enlarged, the price remaining the same. General departments have been added, which increase the efficiency of the publication.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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THE PROFESSION AND BUSINESS.

The British Medical Association has now a proper business management. Before the first of the year the members received from the general secretary a circular letter in which they are informed that the annual subscription falls due on the first of January. "As a result," the letter continues, "of strong representations made during the Toronto Meeting, and to save you as much trouble as possible, a bill has been drawn for the amount due from you. This will be presented in January by the Bank of Montreal for your kind acceptance."

We can well understand the necessity for eliminating from the subscription list of the *Journal* names of persons who will probably not pay; but we are not informed if members who refuse the draft thereby remove themselves from membership. At every meeting members join the Association for that occasion alone, their only desire being to "scramble at the feast." In Montreal in 1907 it was so, and the Association

suffered a loss of several hundred pounds, by their failure to pay the fees for succeeding years, during which they received the *Journal*. The better way, we think, would be to apply the strict rule, and at the end of the year, after due notice, remove the names of all who are in arrears. If those who refuse the draft are not removed from membership, no good will result. If all are removed, the good will suffer with the bad; for a member may object to pay a draft which he did not authorize, on the ground of principle and not from mere contumaciousness.

We are obliged to confess that, at the Toronto meeting, we did not discover any great clamour for this innovation, nor does a careful search in the proceedings as published to this date disclose any particulars as to the source of these "strong representations." It would have strengthened the position of the general secretary, if he had indicated where an account of this propaganda might be found.

In the absence of such specific information we can only express the general opinion that the persons who made these strong representations were singularly unwise. We have nothing but blame for members who can conveniently pay their twenty-five shillings in advance, and do not discharge their legal obligation; and pity for those who find it inconvenient to do so. Yet membership in the Association is voluntary, and we fear that the exigency of the demand will tempt some members into the rash and foolish step of withdrawal.

It will be hard to convince these fractious members that the procedure is designed primarily "to save them as much trouble as possible." They have experienced a similar solicitude on the part of tradesmen who were not entirely disingenuous in their proffer of accommodation. If the plea had been put forward that money was urgently needed for managerial, and clerical, expenses, for the heavy cost of travelling, for the publication in the official Journal of much material which it is an obligation to publish, these members might assent with alacrity to the probable truthfulness of the statement.

The Executive of the Canadian Medical Protective Association heard similar "representations" at the Halifax meeting in 1905, and "drew" upon the members for three dollars which, by some obscure process of reasoning, they thought was a more convenient amount to remit than the previous fee of two dollars and a half. It does not appear that the members at large were of that opinion. The result of this experiment by the general secretary may well form a subject of enquiry at the next annual meeting.

We have observed that this spirit of business is at work also in the management of the Journal. In the issue of December 15th, 1906, on

advertising page 59, there are thirty "warning notices," such as we read in those organs of public opinion issued by unions of plumbers, house-smiths, and miners. We may pass this by, for we are not in the habit of going to the advertising pages of medical journals for standards of ethics. What appears in the editorial columns, however, is fair subject of comment. In the same issue at page 1735, there is an account, with editorial comment, of "a hot discussion" which took place before the Halifax Board of Guardians. The conclusion of the article reads as follows:

"Some said they themselves belonged to trade unions, and that the medical profession in taking up these matters were perfectly right, and the action in this particular case in every way justified. One went so far as to add that if any member of the profession had accepted the post, after warning notices had been issued and knowing that the pay had been cut down, the action would have been that of an ordinary blackleg. The incident is quite sufficient by itself to prove the value of the warning notices, and to show also that in attempting as a united body to safeguard the interests of its members the medical profession is taking a course which business men regard as sensible and just."

We are willing to let these sentiments stand as the exact contrary of the spirit which is immanent in the ethics of the medical profession. We are banded together for service, not for self-aggrandizement. The black-list is not a weapon for our hands. The profession is the absolute antithesis of business. When "business men regard as sensible and just" our conduct, as measured by their standards, then we are lost. It is by saving our life by business methods that we shall lose it.

So long as we retain this high position we are upon safe ground. The Courts are beginning to scrutinise us closely, for we are in possession of special privileges. If we abandon our high tradition of unity in service for corporate and individual advancement, we will become proper subject for judicial enquiry. Only last month the Divisional Court, annulled the decision of the Ontario Medical Council, under which the name of Dr. Crichton was stricken from the roll for—as we still think—shameless advertising. An organ of professional opinion which speaks in this way upon the very essence of professional ethics, cannot forever be expected to carry conviction in its adjudication of those controversies which appear to be arising continually in England between A. and B., between partners, between consultants and practitioners, between patients and the public.

It is all very well to strain out gnats, to give tithes of mint and cummin, to extract motes; but only so long as a camel is not swallowed, the

weightier matters of the law not neglected, and those beams removed, which totally obstruct the vision. And finally, whilst we are in the present frame of mind, we may add that, if the attitude of the Association is correctly indicated by the extract quoted, we fear that some members will not think it advisable to pay the bill of twenty-five shillings which, the general secretary informs us, "will be presented by the Bank of Montreal."

THE PROFESSION AND THE LAW.

A man may be a judge, and yet be as ignorant of medicine as the casual man in the street. Indeed there is some evidence that such is the case. But when a judge speaks from the bench upon the law as it applies to the profession of medicine, we are bound to listen to him, and to govern ourselves by what he says. A recent case in Ontario afforded the judges an opportunity to expound the law.

The Ontario Medical Council took notice of the conduct of Dr. Alexander Crichton, and struck his name from the roll of those legally qualified to practice medicine. As we understand the case, Dr. Crichton advertised in the newspapers that he had discovered an infallible remedy for a distressing disease, and offered to supply it at a certain price. The profession, speaking through the council, said that, if he had discovered such a cure, he should make it public for the good of all sufferers, as has been done in the case of the discovery of the remedy for diphtheria, and for the prevention of small-pox, malaria, and typhoid fever. They said, in effect, what has been said these two thousand years, that a man cannot be a member of the profession, and a tradesman, at the same time. Dr. Crichton was free to choose the narrow path of professional honour, or the wide road to commercial affluence. He chose the latter course. He was cast out. He appealed to the Courts, and was restored.

It should be clearly understood that the Court did not subvert the principle which we have enunciated, that a man cannot be a tradesman and a member of a profession at the same moment. The Court made it clear, however, that the Council must act according to the forms of law, and that also is a sound principle. Indeed there is nothing in the judgment to prevent the Council from proceeding against Dr. Crichton again. *The Toronto Globe* of December 18th, deals with the case so sensibly that its editorial article is worth reproducing:—

"The action of the Ontario Medical Council in striking Dr. Alexander Crichton, of Carleton, from the roll has been reviewed by the Divisional Court, and the decision has been annulled. The chief reason for this

is that the conviction was for offences different from those charged, that the Discipline Committee made a decision instead of reporting facts, and that the trial was not conducted with proper safeguards for the accused. The finding does not prejudice future actions. The interest excited when trades unionists use their negative power and refuse to work with someone who is regarded as hostile explains the wide-spread attention given to the case of Dr. Crichton, against whom the Medical Council used its positive power in taking away the right to practise his profession. The punishment is severe, even terrible, in its possible results, and nothing could be more likely to awaken public sympathy. That such sympathy is likely to obscure the special merits of any case is a fact that should make the Medical Council extremely cautious in exercising the powers conferred on it for the protection of the public. To some minds, to prohibit a man from earning his living in a profession or calling for which he has qualified himself would seem like a cruel and unnatural punishment that should not be inflicted under any circumstances.

The attitude of the medical profession is easy to understand. That profession has no secrets. Every discovery by its members is given to the world. All the results of the most careful and painstaking investigation are freely disclosed. To keep back anything or to use a secret remedy is to the profession disgraceful. The world owns all medical discoveries, and to retain them for personal profit is fraudulent. For this truly altruistic attitude the world owes the medical profession a deep debt of gratitude. A monetary estimate of this debt may be made by considering what fortunes could have been made out of recent discoveries if kept secret and exploited for private gain.

As to advertising, it seems to be regarded as fraudulent because it involves positive promises and inclusive claims which are not warranted by the experience of the profession. The man who promises that a certain result will follow the taking of a certain remedy does what physicians of the widest experience and deepest learning would not think of doing,—is rushing in where angels fear to tread.

Men distinguished in the medical profession are the best judges as to the propriety and honesty of the conduct of brother practitioners. But whether they are the best qualified to sit in judgment, to exercise authority, or to pronounce a sentence of expulsion is an open question. They are human in spite of their free gift of discoveries to the world, and when they attempt to sit in judgment on a brother the complicated influence of their various human interests may create the need of a disinterested tribunal. Power is always a dangerous thing: unless the

power of the Medical Council is exercised with extreme care, it will, of necessity, be curtailed."

INSPECTION OF FOOD.

A Bill respecting the inspecting of meats and canned goods—to give it the official title—was introduced in the Dominion House of Commons in January. If it pass into law in its present form, there will be no ground of complaint that the provisions are not sufficiently stringent. One important newspaper which usually voices the sentiments of the established order of things makes the plaintive comment that the Bill gives to officials and minister powers of destroying industries. This is precisely what it is intended to do; and if it does that, it will have fulfilled its purpose. The laws against burglary are intended to destroy the industry of house-breaking; and the manufacturers of spurious coin may well complain that the laws against counterfeiting tend to destroy their business.

The Bill is composed of twenty-seven sections which fall under the headings of Inspection of Animals, Inspection of Packages, Penalties, and Powers of Inspectors. No animal shall be allowed to enter the parts of an establishment where slaughtering is carried on, unless it has undergone inspection and been found to be healthy and fit for food. Every animal affected, or suspected of being affected, with contagious or other disease, shall be slaughtered under the supervision of the inspector and be disposed of as provided by the regulations. The minister may order the inspection of the carcases of all animals intended for export and every carcase, found to be fit for food, shall be marked by the inspector.

All articles prepared for food and packed in cans or packages, shall be subject to inspection during the whole course of preparation and packing; and all such packages shall be marked or labelled by the inspector, provided the law has been complied with. The inspector may refuse to inspect or mark articles in any establishment where the sanitary conditions are not in accordance with the regulations.

The penalties are heavy and punishment swift. An establishment may be summarily closed. Exporters are forbidden to handle foodstuffs unless they have been inspected; and clearance may be denied to their vessels.

The powers of the inspectors are large. They may enter, and arrest without warrant; and upon their evidence an offender may be convicted and imprisoned up to the term of two years.

Finally, the inspectors themselves are provided for, as the courtesies contained in the Criminal Code of 1892, respecting the bribery and cor-

ruption of officials or employees of the Government are made to extend to them.

On December 14th 1906, Mrs. Featherston Osler, celebrated her one hundredth birthday in Toronto. Among her six children are the following distinguished men: the late B. B. Osler, Q.C., a member of the Canadian bar; Dr. William Osler, Regius Professor of Medicine at the University of Oxford; Justice Featherston Osler, of the Ontario Court of Appeals, and E. B. Osler, M.P. In addition to her six children Mrs. Osler is the grandmother of twenty-six and the great-grandmother of twenty-one. Mrs. Osler has lived during the reign of five English sovereigns, a fact commemorated by the birthday cake which graced the festivities. These are George III. George IV. William IV. Victoria, and Edward VII. It is a matter of congratulation that Mrs. Osler, in spite of her one hundred years, remains well in all respects, except for a slight degree of deafness.

Dr. John D. Cameron died at Montreal General Hospital on January 5th, 1907, of typhoid fever, after a brief illness. He was born at Caledonia Springs, and received his early education at Vankleek Hill High School, and at the public school of L'Orignal. In 1889 he came to Montreal. He entered the Medical Faculty of McGill, and graduated in 1893. He was for a year in the Montreal General Hospital, and afterwards a year on the staff of the Royal Victoria Hospital, after which he began general practice. At the time of his death he was assistant gynæcological surgeon at the Montreal General Hospital.

The assemblage which came together at the funeral obsequies in St. Paul's church at half past eight in the morning was a remarkable tribute to the respect and affection in which Dr. Cameron was held by all classes of the community.

The death of Dr. William K. Otis has made a profound impression upon his associates. At the regular meeting of the American Urological Association, held in New York, the President, Winfield Ayres, officially announced the death of Dr. Otis the Vice President of the Second Section, and called for a report by the Committee appointed for the purpose, to present a memorial on the Association's bereavement. In presenting the report, a member of the Committee said that the set form of preamble and resolutions was deemed inadequate to express their sorrow, and they adopted a new reading in which the sad event is referred to as "Billy's demise." We think the old form is better.

Dr. George Duncan died in Victoria on December 2nd, 1906. Dr. Duncan was born in Russell, near Ottawa, in 1862. He received his early education at the Ottawa Collegiate Institute, and for a number of years taught school in Ottawa. He then took a medical course at McGill University, and in the year 1890 went West. Taking up his residence in Victoria, he and his brother, who was drowned in the *Islander* disaster, soon acquired an extensive practice. Some time later he was appointed city medical officer. At the time of the Klondike excitement he, like many other Victorians, became interested in the fabulous wealth which Yukoners were reported to be making and going north, he engaged in practice in Dawson, remaining there until the death of his brother, Dr. John Duncan. He then came south and took up his brother's practice in Victoria city, which he held until he died.

Misery loves company. Therefore it is comforting to us in Montreal to read the following from the *London Lancet* of January 5th:—"To leave streets in such a condition as Piccadilly-circus and Regent street were left on Thursday and Friday is a menace to health and a disgrace to any body of men whose duty it is to keep clean the streets over which they have charge."

Patrons of the Allan Line, and especially of the *Parisian*, will regret to learn of the death of Dr. Charles Neville, for many years surgeon on that favourite ship. Dr. Neville had many friends in Montreal, who will miss his occasional visits.

Reviews and Notices of Books.

THE DISEASES OF THE NOSE, THROAT AND EAR. By CHARLES P. GRAYSON, M.D., Clinical Professor of Laryngology, Medical Department, University of Pennsylvania. New (2d) edition, revised and enlarged. Octavo, about 550 pages, with 152 engravings and 15 plates in black and colors. Cloth, $4.00, net. Lea Brothers & Co., Philadelphia and New York, 1906.

Four years have elapsed since the first edition of this book appeared. The second edition is more complete, and contains much new matter. The classification of the different diseases is excellent, and the needless sub-divisions adopted by many contemporary writers on ear, nose and throat works have been happily omitted.

The author holds very pronounced views upon the choice of nasal specula that should be used; and, while we agree with him that some modification of Gruber's ear speculum is useful for the examination of the

nares of children, in adults the bivalve speculum is the more modern instrument, and by its use a more comprehensive view of the nasal field can be obtained. If ordinary care is taken, wounding of the nasal mucous membrane is an extremely rare occurrence. The bivalve speculum can also be sterilized, a fact of great importance both in private and hospital practice. The chapter devoted to the etiology of chronic rhinitis makes interesting reading, and would do credit to Kraft Ebbing, or Havelock Ellis.

In the treatment of deflections of the nasal septum, although the submucous operation has been described, sufficient stress has not been laid upon the advantage of this operation, namely, (1) the operation can be done under local anæsthesia; (2) the after-treatment is simple, and there is less likelihood of nasal or aural complications; (3) the comparatively short duration of the after-treatment. The general results reported are more satisfactory than any operation yet devised for the correction of septal deflections. The indications for the Killian operation on the frontal sinus have been carefully described and illustrated, and the surgical treatment of the antrum of Highmore and the other accessory nasal cavities has been ably dealt with. The author has, indeed, been fortunate not to have met with a case of primary or secondary hæmorrhage following tonsilotomy. The compression tonsilotome of Mickulicz has not been described or illustrated, although it is, we think, an indispensable instrument in the armamentarium of the specialist. In the chapter on tubercular laryngitis the writer has not mentioned the use of formalin, either in the form of a spray or topical application. We have found this drug particularly beneficial in such cases. Killiam's device for examining the trachea and bronchi is described and depicted both for superior tracheo-bronchoscopy and inferior bronchoscopy. This device, the author points out, represents an enormous advance over all instruments for examining the deeper air passages, as it "provides us with a means not only of directly inspecting the trachea and larger bronchi, but of carrying out certain surgical procedures within them." That portion of the book devoted to the diseases of the ear and intracranial complications, secondary to aural disease has been ably presented, with the possible exception of the surgery of the labyrinth, which has not been considered. The final chapter of the work is devoted to medical formulæ, many of which will be found useful to those interested in ear, nose and throat work.

We can heartily recommend this book to the student, general practitioner and specialist. The author has had a wide and varied experience in ear, nose and throat work, and is a pleasing and graphic writer.

The illustrations are numerous and well executed. The value of the book is enhanced by good paper, and clear type. R. H. C.

SURGERY: ITS PRINCIPLES AND PRACTICE. In five volumes by 66 eminent surgeons. Edited by W. W. KEEN, M.D., LL.D., HON. F. R. C. S., LOND. and EDIN., Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Phila. Vol. 1: Octavo of 983 pages, with 261 text illustrations and 19 coloured plates. W. B. Saunders Co. Philadelphia and London, Canadian Agents L. A. Carveth and Co. Toronto, Ont. 1906. Per volume: Cloth, $7.00 net, half morocco, $8.00, net.

The first volume opens with a sketch of the history of surgery by Dr. J. G. Mumford. The subject, of itself, is interesting and the writer has made it more so by his happy style of presentation. It includes a short narrative on the history of American surgery, and ends with a sincere tribute to Lister. The average student knows little of the history of medicine, which is to be regreted, for he loses much by his lack of knowledge of the lives of those men whose researches have made possible the surgery of to-day. Surgical Physiology is dealt with by Dr. George W. Crile, who has done such excellent work in this subject. The correct interpretation of clinical phenomena and their proper treatment are put before us on a sound scientific basis. Dr. John C. Da Costa, Jr., contributes a concise and helpful chapter on the examination of the blood. Dr. Ludvig Hektoen presents the theory of infection and immunity, a rather weighty subject, in a lucid manner. The chapter on inflammation is written by Dr. J. G. Adami. The essential features of his larger contribution on this subject are clearly described, and the various processes well illustrated. The treatment of inflammation is presented in its broadest principles, while due cognisance is taken of the recent work of Bier and Wright. Suppuration, ulceration, and gangrene are well described and illustrated by Dr. Leonard Freeman. An excellent article on the process of repair is given to us by Dr. Francis Carter, Wood, Dr. Charles Harrison Frayier has handled a diversity of subjects including thrombosis and embolism, erysipelas, tetanus, glanders, actinomycosis, anthrax, and diseases directly derived from animals, insects, and reptiles, in a well balanced and thoroughly up-to-date manner. Traumatic fevers are described by Dr. Eugene A. Smith in a short interesting chapter. Just why scurvy and rickets should be included in a surgical work is not clear, as the treatment described is almost entirely medical. On the subject of surgical tuberculosis Dr. John Chalmers Da Costa writes from the vantage ground of a long and active experience. He regards the Finsen light and the X rays of undoubted value in cases of lupus, but the tuber-

culin treatment as a disappointment, save in lupus. No mention is made of Wright's work which, perhaps, is in a too experimental state to warrant a place among text-book therapeutic measures. Syphilis is taken up somewhat extensively by Dr. Edward Martin, whose work with Dr. J. William White on venereal diseases is so well known and appreciated as to be a guarantee of the excellence of this chapter. Tumours are described by Mr. John Bland-Sutton at some considerable length—nearly 150 pages. The classification and illustrations are practically those of his authoritative monograph on this subject. The embryonic theory is now discarded as an explanation of the origin of cancer, and the various theories advanced receive an impartial consideration. The volume ends with a chapter on wounds and contusions by Dr. G. W. Crile, and includes a discussion on shock and collapse and their appropriate treatment. A most welcome and important step, and one which enhances greatly the instructiveness of the volume is the appending of a bibliography to every chapter, in many instances an evidence of the painstaking care on the part of the author to make his article complete and up to date. The book itself is of a convenient size, the paper and print good, the illustrations quite adequate for the purpose both in quality and quantity and yet not at the expense of the reading matter, a fault not infrequently present in American publications. If this volume is a sample of what is to follow, we can confidently look forward to the appearance of the others with a surety that we will have a work of distinct addition to modern surgery. W. L. B.

Lectures on Diseases of the Lungs. By James Alexander Lindsay, M.D., F.R.C.P. (Lond.), Professor of Medicine, Queen's College, Belfast. Second edition. London: Baillière, Tindall and Cox. 1906. Canadian Agents, J. A. Carveth and Co., Toronto. pp. 509. Price $3.50.

The reviewer confesses to having received considerable instruction in the reading of Professor Lindsay's book, of which this is a second edition. The earlier edition dealt with diseases of the heart as well, but the present book deals with the lungs only. It begins by a very lucid, clear cut recital of the methods of physical examination: there is a tendency here, it is true, to give the classifications of the original masters of physical diagnosis, Laevuec, Skoda and others, and these classifications are not very useful, but they serve as a foil to the clear dogmatic statement of the author's own belief which generally immediately succeeds.

Following the chapter on physical examination is a discussion of the subject of pulmonary symptoms, and then a moderately full statement

of the various diseases of the lungs: pulmonary tuberculosis comes in for a full discussion, in eight chapters; and the handling of the subject seems adequate; it is true that the climatic chapter is somewhat from the European point of view, as is natural, and deals essentially with continental resorts: the chapter on the prevention of pulmonary tuberculosis contains much useful information on the subject of national measures, and has evidently been well thought upon.

Treatment is dealt with in the case of each disease, and the book is thus rendered a useful one for a practitioner as well as for a teacher; in a word, it may be said that the book is too full of information to be read continually with comfort, and thus has all the more value as a work to consult when one requires a definite piece of information upon diseases of the lungs. It can be heartily recommended.

A Manual of Medicine. By Thomas K. Munro, M.A., M.D. Second Edition. London: Ballière, Tindall and Cox, 1906. Canadian Agents, J. A. Carveth and Company, Toronto.

This book of about 1,000 pages of small size, and large, excellent type, is an effort on the part of the author to synopsize the essential features found in larger textbooks. It is thus practically a compend, and for those who find such works useful, the book is presented in a suitable form. No subjects are dealt with in detail. Thus, for example less than fifty lines of this large-typed page deal with gastrectasis; pulmonary tuberculosis is dismissed in sixteen pages, the physical signs occupying one page and the complications eleven lines. Perhaps the book is suitable chiefly for those who are anxious to acquire in a short time a general theoretical knowledge in a superficial way of the essential outlines of medicine.

Diseases of the Eye and their Treatment. By Henry R. Swansy, M.A., M.D., and Louis Werner, M.B., F.R.C.S.I., London, H. K. Lewis. Ninth edition, 1907.

This well known text-book has undergone a much-needed and thorough revision by Mr. Werner whose name appears as joint author. All the recent advances in ophthalmology have been carefully noted, and a large number of excellent illustrations added without materially increasing the size of the volume. The work, as it now stands, forms an attractive and authoritative manual of eye surgery, and well deserves a continuance of the popularity which it has heretofore enjoyed.

A Manual of Otology By Gorham Bacon, B.A., M.D. Fourth edition revised and enlarged. Philadelphia: Lea Brothers & Co.

The fourth edition of this popular manual forms an even more pleasing volume than its predecessors. The arrangement and the printing

and illustrations are excellent; and the concise and reliable exposition of otology of previous editions has been revised so as to include the more recent advances in this field. The work can be cordially recommended especially for students of medicine for whom it is especially intended.

Epitome of Pathology. By John Stenhouse, M.A., B.Sc. (Edin.), M.B. (Tor.) and John Ferguson, M.A., M.D. (Tor.), The Medical Epitome Series, 12mo., 285 pages, with illustrations. Lea Brothers and Company, Philadelphia and New York. Cloth, $1.00 net.

We do not love cram books nor the systems of education and examination that give rise to them, but just as our social system makes it that we have the poor always with us, so do we suspect it to be inevitable that intellectual poverty must continue to be pandered to by works of this nature. Of its class this impresses us as being distinctly good. Finding our own classification of tumours given in detail we may be prejudiced in its favour, but before making this discovery we had noted its clear, direct style and its attempt at a proper balance between general and special pathology. Paper, type, printing, and arrangement are all excellent.

J. G. A.

Genito-Urinary Diseases and Syphilis. By Henry H. Morton, M.D., clinical professor of Genito-urinary diseases in the Long Island College Hospital: Genito-urinary surgeon to the Long Island and King's County Hospital, etc. 499 pages. F. A. Davis & Co., Philadelphia.

Throughout this, the second edition, the author has evidently endeavoured to keep the practical side in view, without however, neglecting its necessary foundation. The book is well written and its contents clearly, though, in parts, perhaps too concisely expressed. The influence of the German school, is evident throughout, and freely acknowledged by the author. Perhaps on this account more prominence, than is usually the case with American and English publications is given to the use of instruments of precision in bladder, ureteral and renal diagnosis, such as the urethroscope, cystoscope, urino-segregaters, etc.

The pathological and bacteriological aspects of these diseases come in for almost a fair share of consideration, the details for proper bacteriological diagnosis of various infections being given in an appendix.

Among the changes since the former edition we note more prominence is given to early operation for the hypertrophied prostate. The author

prefers the perineal to the suprapubic route in operation but should, we think, in a book of this kind express some opinion on the present question of sexual impairment after such operation. On the whole the views are conservative.

The staining and examination of the spirochæta pallida—the so called Goldhorn stain would appeal to us more under Wright's name—receive consideration and the chapter on tuberculosis of the kidney is excellent. Therapeutics appear sound, indeed those drugs and methods as yet not proven receive but little consideration. In discussion of urinary fever we are glad to note that the author considers its origin infective.

There are several coloured plates and numerous illustrations. Some photo-engravings have in our opinion lost much of their usefulness through a too obvious retouching. The arrangement is simple and the index apparently sufficient. A book of 500 pages we can readily recommend to students and practitioners who desire the latest word on genito-urinary matters in a concise and practical form.

R. P. C.

A Text-Book of the Practice of Medicine. By James M. Anders. Seventh edition. W. B. Saunders & Company, Philadelphia and London, 1905.

This valuable text-book has been much enlarged, and the necessary changes to bring it up to the date of publication have kept pace with recent advances in medical science. The book is already too well known to require the praise which it deserves.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., and H. R. M. Landis, M.D., December 1st, 1906. Lea Brothers and Company, Philadelphia and New York.

The contents of this volume are Diseases of the digestive tract and allied organs, the liver, pancreas and peritoneum, by J. Dutton Steele, M.D.; Genito-Urinary diseases, by William T. Belfield, M.D.; Diseases of the kidneys, by John Rose Bradford, M.D.; Anæsthetics, fractures, dislocations, amputations, surgery of the extremities, and orthopædics, by Joseph C. Bloodgood, M.D.; and the practical therapeutic referendum, by H. R. M. Landis, M.D. We find scant mention of the valuable work which is being done in Canada towards the progress of medicine.

Transactions of the Association of American Physicians. Vol. xxi.

The present volume contains 58 pages. It will afford a year's reading. There is no better record of medical opinion upon questions, new and old.

THE PRACTICAL MEDICINE SERIES. Edited E. Gustavus P. Head, M.D. Vol. viii. Materia Medica and Therapeutics, Preventive Medicine, Climatology, Forensic Medicine. Editors: Drs. Butler, Favill, Bridge, Brown, Moyer, series 1906. The Yearbook Publishers, 40 Dearborn St. Chicago.

This volume covers the ground indicated above for the year, and does it well, considering the space at the editor's disposal. Suggestive Therapeutics, of which one once heard so much, comes in for scant treatment.

Medical News.

ROYAL VICTORIA HOSPITAL.

The thirteenth annual meeting of the Royal Victoria Hospital was held on the 16th January. The report of the superintendent, covering till 31st December, 1906, was received and read, as follows:—

The number of patients admitted during the year was 3,444, an increase of 351 over the previous year. There were 1,989 free patients, 1,021 public ward patients, paying 50 cents and $1 per day, and 434 private ward patients; 2,525 were residents of Montreal, and 919 came from districts outside of the city. The total days of hospital treatment aggregated 73,993, as against 71,194 during the previous year, an increase of 2,799 days. The average number of days' stay in hospital per patient was 22.04, as against 23.07 the previous year.

On the 1st January, 1906, there were 191 patients in the hospital remaining from 1905, and during the year 3,411 were discharged, of whom 1,935 were well, 994 improved, 152 not improved, 115 not treated, and 215 died. Remaining in hospital 31st December, 1906, 224.

Of the 215 deaths, 69 took place within 48 hours of admission. The death rate for the year has been 6.30 per cent., or, if those dying within 48 hours after admission be deducted, 4.28 per cent. The highest number of patients in the hospital on any one day was 246 on the 7th December, and the lowest was 174 on the 2nd January; the highest monthly average was 225, in December; and the lowest 190, in July; the daily average for the year being 203, as against 195 for the previous year.

During the thirteen years that the hospital has been in existence, 33,126 patients have been admitted to the wards for treatment:—1894, 1,570; 1895, 1,841; 1896, 2,016; 1897, 2,349; 1898, 2,279; 1899, 2,537; 1900, 2,619; 1901, 2,579; 1902, 2,814; 1903, 2,931; 1904, 3,054; 1905, 3,093; 1906, 3,444.

In the out-patient department the total number of patients treated was 4,229; the number of visits of these patients aggregated 29,403:—Medical, 10,085; surgical, 8,641; eye and ear, 3,853; nose and throat, 5,434; diseases of women, 1,390. The ambulance made 1,066 trips.

The income for the year was $160,436.09, while the ordinary expenditure amounts to $130,353.30; the balance of $30,082.79 being applied in reduction of the indebtedness incurred by the new buildings and other additions.

The total cost per day per patient has been $1.75; the cost per day of maintaining each person in the hospital—staff, servants, all employees and patients—being 85 cents, and the daily cost of provisions for each person, 21½ cents.

The appointment of Dr. W. F. Hamilton and Dr. C. F. Martin, physicians to the hospital, was confirmed by the governors, and Dr. Francis J. Shepherd was appointed consulting surgeon. The following appointments were made to the staff for the year ending December, 1907:—

Associates in medicine, Dr. Cushing, Dr. Fry, Dr. McCrae; associate in medicine in charge of dermatology, Dr. Burnett; associate in neurology, Dr. Russell; associate in gynæcology, Dr. Goodall; associate in ophthalmology, Dr. Tooke; assistant pathologist, Dr. Klotz.

WESTERN HOSPITAL.

The annual meeting of the Western Hospital was held January 15th. The report of the medical superintendant stated that on 1st January, 1906, there were 24 patients in the hospital from 1905. There were 624 patients admitted during the year, as compared with 524 the previous year, an increase of 100; 567 were discharged, 22 died and 35 remained in on 31st December; 316 males, 308 females, 243 Roman Catholics, 355 Protestants and 26 Jews; 209 medical, 328 surgical, 87 gynæcological; 322 free, 58 paying 50 cents per day, 140 semi-private and 104 private; 552 from the city and 72 from a distance. The largest number of patients in the hospital at any one time was 37, on 26th and 27th September and 11th October, and the smallest, 22, on 25th March. Average daily number was 29. The death rate for the year has been 3.5 per cent. Deducting 12 deaths occurring within 48 hours of admission, the death rate was 1.6 per cent. There were 10,605 patients' days, giving an average of 16 days per patient.

In the outdoor department the report was as follows: — Medicine, 1,780; surgery, 1,430; gynæcology, 499; eye, 620; nose, throat and ear,

874; skin, 309; genito urinary, 763; total number of consultations, 6,275.

The total receipts for the year were $15,427. Last year the amount was $21,405, but it included $6,395 subscribed especially for paying off the outstanding deficit, which had existed for some years. Private patients paid $6,423, as against $6,298 last year. The average daily cost of each patient was $1.42.

Following are the newly-elected officers:—President, Mr. Peter Lyall; first vice-president, Mr. Robert Bickerdike; second vice-president, Mr. B. A. Boas; treasurer, Mr. H. A. Hodgson; general secretary, Dr. Geo. T. Ross.

The committee of management is as follows:—Ald. Stearnes, J. Pitblado, P. W. McLagan, Thos. Gilday, A. P. Willis, C. W. Davis, Jas. A. Ogilvy, jr., Dr. J. Perrigo, Dr. J. B. McConnell, W. H. Trenholme, F. Robertson, John Murphy, Chas. Gurd, J. T. McCall, D. K. McLaren, W. McLea Walbank, Ald. Gallery. Medical representatives:—Dr. Perrigo and Dr. J. B. McConnell.

AMERICAN PHYSICIANS AND SURGEONS.

The following is the preliminary programme of the seventh meeting of the Congress of American physicians and surgeons, to be held in Washington, May 7th, 8th and 9th, 1907.

President, Reginald H. Fitz, M.D., LL.D., Boston; vice-presidents, *ex officio;* the president of the American Dermatological Association, Dr. Arthur Van Harlinger, Philadelphia; the president of the American Laryngological Association, Dr. Arthur W. de Roaldes, New Orleans; the president of the American Surgical Association, Dr. Dudley P. Allen, Cleveland; the president of the American Climatological Association, Dr. Thomas Darlington, New York; the president of the Association of American physicians, Dr. Francis P. Kinnicut, New York; the president of the American Association of Genito-Urinary Surgeons, Dr. William K. Otis, deceased; vice-president Dr. Harvey G. Mudd, St. Louis; the president of the American Orthopedic Association, Dr. Joel E. Goldthwait, Boston; the president of the American Physiological Society, Dr. William H. Howell, Baltimore; the president of the Association of American Anatomists, Dr. Franklin P. Mall, Baltimore; the president of the American Pediatric Society, Dr. B. K. Rachford, Cincinnati; the president of the American Medico-Psychological Association, Dr. Charles G. Hill, Baltimore; the president of the American Association of Pathologists and Bacteriologists, Dr. William H. Welch,

Baltimore; the president of the American Ophthalmological Society, Dr. Charles J. Kipp, Newark; the president of the American Otological Society, Dr. Emil Gruening, New York; the president of the American Neurological Association, Dr. Hugh T. Patrick, Chicago; the president of the American Gynecological Society, Dr. Clement Cleveland, New York; treasurer, Newton M. Shaffer, M.D., New York; secretary, William H. Carmalt, M.D., New Haven.

The meetings of the Congress will be held in the Convention Hall of the Arlington Hotel on Tuesday, May 7th, at 3 p.m., when the Congress will be opened by the President. The subject to be considered is: "The historical development and relative value of laboratory and clinical methods in diagnosis." Papers will be read as follows: by Dr. William Osler, Oxford, "The Evolution of the Idea of Experiment in the Study of Medicine;" By Dr. Lewellyn F. Barker, of Baltimore, on Neurological and Psychiatric Diagnosis; By Dr. Alfred Stengel, of Philadelphia, on Chemical and Biological Diagnosis; by Dr. Richard H. Cabot, of Boston, on Physical Diagnosis. This will be followed by a discussion by Prof. Fred'k Müller, of Munich, Dr. George Blumer, of New Haven, and others. At 8 p.m. an address by the President of the Congress, Reginald H. Fitz, M.D., LL.D., will be given. This will be followed by a reception.

On Wednesday, May 8th, at 3 p.m. the subject to be considered is: "The Comparative Value of the Medical and Surgical Treatment of the Immediate and Remote Results of Ulcer of the Stomach." Papers will be read as follows: by Dr. John H. Musser, of Philadelphia, and Dr. Charles G. Stockton, of Buffalo, on the indications for, the methods of, and the results to be expected in the medicinal treatment; by Dr. William J. Mayo, of Rochester, on surgical treatment of acute ulcers of the stomach, including perforations and hæmorrhage; and Dr. John C. Munro, of Boston, on chronic ulcers and the indications for surgical treatment. These will be following by a discussion by Mr. B. G. A. Moynihan, of Leeds; Dr. A. Jacobi, of New York; and others.

A meeting of the St. John branch of the British Medical Association was held December 14th, 1906. The president, Dr. Murray MacLaren, was in the chair, and the principal business, besides the election of officers, was the adoption of the by-laws. The following were elected for the ensuing year: Dr. Thomas Walker, president; Dr. James Christie, vice-president; Dr. J. R. McIntosh, treasurer; Dr. Warwick, financial secretary, and Dr. J. H. Scammell, recording secretary. The following

were elected members of the council: Dr. P. S. Sprague, Woodstock; Dr. G. T. Smith, Moncton; Dr. F. H. Wetmore, Hampton; Dr. Travers, Dr. Skinner, Dr. G. A. B. Addy and Dr. McAlpine. Dr. W. C. Crockett, of Fredericton, was chosen representative.

The third congress of climatotherapy and hygiene will hold its meeting, during the Easter vacation 1907, on the French Riviera, that part between Hyeres and the Italian frontier, and in Corsica. The sessions will be held at Cannes, Monaco, Mentone, and Ajaccio; but all the towns and stations on the Mediterranean Littoral are included in the programme—Cannes, Nice, Monte-Carlo, Mentone, Hyères, Antibes, Grasse, St-Raphaël, Juan-des-Pins, Beaulieu, Cap Martin, Florence, The Congress will last about one week on the French coast, and will finish in Corsica. The General Secretary is Dr. H. Verdalle 1, Boulevard d'Alsace, Cannes.

Fifty thousand four hundred and forty-one patients were treated at the Montreal General Hospital last year. Of these 3,459 were admitted to the wards, and 46,982 were treated in the outdoor department, an increase of 222 in the indoor, and 2,466 in the outdoor department.

During the month of December 279 patients were admitted to the wards of the hospital, and 253 were discharged. There were 27 deaths, 16 of which occurred within three days of admission. The average daily sick in the hospital was 202, and the highest number on any one day, 215. Outdoor consultations numbered 3,577. The ambulance made 171 runs in response to calls.

Dr. James Henderson of Cobourg was killed by accident on December 21st, 1906. He was driving home late at night in a heavy snow storm, and was struck by a Grand Trunk Railway train, and instantly killed. Dr. Henderson was a graduate of McGill, and won the gold medal of his year.

Dr. N. Thornton of Bonaventure County, died on January 2nd, under painful circumstances. By the upsetting of the lamp his house was destroyed, and he was so badly injured that he died.

Dr. R. B. Prince died in Chicago on January 3rd, as a result of pneumonia. Dr. Prince was a graduate of Queen's College, Kingston, and had practised in that town.

Charles M. Hagar, M.D., a graduate of the 1901 class of Queen's University, Kingston, died on January 12th, at, Haseman Hospital Rochester, N.Y.

We have received from Messrs. Cadbury some samples of their chocolate confections packed in fancy boxes. The novelties include chocolate candy, crême almonds, Edelweiss chocolate, and others. *The Lancet.* Dec. 15th, 1906.

George T. Tuckett has given $1,000 to Hamilton Hospital to be expended on instruments and furniture for the operation room in the new wing of the hospital.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

C. H. Fagge, M. C. Lond. F. R. C. S. Eng. "Intussusception in Infants." *Practitioner,* December, 1906.

The interest in acute intussusception lies in the fact that it is the commonest form of acute intestinal obstruction in infants, comparatively rare in later childhood and adolescence, and exceedingly uncommon in adult life. The importance of early recognition and treatment is shown by the statistics of Gibson in the Annals of Surgery, 1900, where he states that the possibility of reducing the invagination diminishes rapidly after the first 48 hours of duration; giving 94 per cent on the first day, 83 per cent on the second and only 61 per cent on the third. When to this is added the universally fatal results in irreducible cases in infants under one year of age it is seen how very important early treatment is.

The anatomical conditions present at the ileo-cæcal region are brought forward as causative factors, namely, the relatively greater freedom of the ileum and cæcum in infants, and the change from a more freely moveable mesentery of the small bowel to a more fixed large intestine with wider lumen.

He is strongly in favour of the bimanual examination of the rectum, and lays stress on the absence of the cæcum from the right iliac fossa along with a tumour mass some other place in the abdomen as being evidence of an intussusception. Laparotomy is the ideal method of treatment, inflation, at best, is regarded as an expedient method and associated with many dangers. He employs traction on the bowel

when reduction is difficult and cannot be effected by squeezing the apex towards the cæcum, his one idea being, to relieve the invagination without resection, as no case of resection under one year has recovered. If the peritoneal or even th muscular coats are torn by this traction the rents are immediately sutured. He advises puncture of the distended bowel above the constriction by a large trocar to allow the contents to be evacuated. Appropriate feeding is commenced at once, and if the bowels have not acted naturally, a full dose of castor oil is given 48 hours after the operation. The mortality in 19 cases was 21 per cent, or excluding two irreducible cases, eleven per cent.; a most encouraging gain over other forms of treatment.

C. H. Mayo A.M. M.D. "Peripheral versus Intra-cranial Operations for Tic-Douloureux." *Surg. Gynec. and Obstr.* December, 1906.

The effectiveness of remedies for the cure of a disease is usually in inverse ratio to the number; and of all the diseases that are not fatal, probably facial neuralgia is one of the most distressing and most difficult to cure. Many methods of treatment are enumerated, from the simpler injection of saline solution, etc. around the peripheral openings to the major operation of excision of the ganglion. For those cases when only one or two of the branches are involved, the writer has had good results from evulsion of the nerve at the peripheral opening after Tiersch's method and the plugging of the foramen with a silver screw. No case so treated has complained of the nerve blocked, and some have been thus obstructed for several years. When the supra-orbital branch is involved, cure by this peripheral method is seldom, if ever, effected, and the same is also true when the buccinator is involved. In these cases, and in those when peripheral operation has failed, excision of the ganglion is indicated.

Orro Kiliani, M.D. "Schlösser's Treatment for Trigeminous Neuralgia." *Med. Record.* December 19, 1906.

Schlösser has found in the course of his experiments since 1900 that alcohol, especially in the concentration of 80 per cent., is detrimental to nerve tissue. Thus, an injection of about 1 or 2 C.C. of 80 per cent alcohol into a sensory nerve will produce, after a short period of pain, a complete anæsthesia, which disappears after five or six days. It is a strange fact that, together with the anæsthesia, the tendency to neuralgic attacks disappears, that is to say, the feeling returns, but not the pain. This is, in few words, the raison d'être of the procedure. The technique of the procedure cannot be detailed here, but the injection is

made into the foramen corresponding to the branch involved, and into the ganglion if all these branches are involved. Three injections are given on subsequent days and a fourth if necessary a few days later. Recurrence of symptoms takes place in from 10 to 11 months, when it is found that the attacks are much lighter and yield to one or two injections. This method has also been employed in tic convulsif, and in mixed nerves like the sciatic without permanent injury to the motor fibres.

W. C. B.

MEDICINE.

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

GEORGE G. SEARS, M.D. "Accidents following Thoracentesis: Pneumothorax: Sudden death from Exploratory Puncture." *American Journal of Medical Science,* December, 1906.

Thoracentesis has now become a routine measure both as a diagnostic and therapeutic agent. Accidents however occasionally occur, varying in severity from the pleuritic urticaria described by Minciotti, to a more or less speedy death. Albuminous expectoration, sudden death and pneumothorax are the three conditions to which most interest is attached, the latter two being considered in the present communication.

Sudden death after the withdrawal of even moderate amounts of fluid is a well recognized event, but it is not so well known that it may also follow simple exploratory puncture. Of ten reported cases seven occurred in children, and in at least eight instances a solidified lung was the cause of the ambiguous signs, and had been punctured by the needle. From experimental grounds Russell concludes that the sudden syncopal symptoms are due to afferent impulses conveyed to the medulla by the pneumogastric nerve. Death may be immediate or preceded for several days by unconsciousness and convulsions, which depend upon the cerebral anæmia produced by cardiac inhibition and the extreme lowering of the blood pressure. It is however probable that syncope and possibly asphyxiation, due to hæmorrhage from the wounded lung, play a part in the morbid process.

The writer records a case in which cyanosis and collapse with death in fifteen hours occurred at a second aspiration, and also three cases of pneumothorax resulting from thoracentesis, one of them being due to air returning through the detachment of the aspirating needle. The occurrence of pneumothorax is probably more frequent than is usually recognized after tapping, Ewart stating that on careful examination he

has repeatedly found it. A great majority of the cases recover, the break in the lung tissue soon healing and the air being absorbed.

The causes assigned for the accident have been multiple. Five cases have been recorded in which the aspirating pump was accidentally reversed. All of these recovered but reference is made to a case where a child immediately died. Some cases have been explained as due to the suction of the pleura through an unguarded needle, but there seems reason for grave doubt if this is even the mechanism for an appreciable pneumothorax. In the majority of cases in which fluid was present it was impossible to determine whether it was due to puncture of the lung, to a tear of the pleura bound down by adhesions, or to rupture of an emphysematous bulla.

These accidents occur more frequently when the condition is chronic, or when the fluid is purulent, and in many a large quantity of fluid, was withdrawn. The rapidity of evacuation may also be an important factor, the lung from loss of elasticity being unable to expand sufficiently rapidly to occupy the vacant space. These dangers may be partly averted by allowing the fluid to run slowly, and by stopping the flow after a moderate amount has been obtained. Siphonage is safer if the fluid has existed for a long time, or if there is a large effusion.

Thomas McCrae. "Typhoid and Paratyphoid Spondylitis, with Bony Changes in the Vertebræ. *American Journal of Medical Sciences,* December, 1906.

McCrae describes two cases of spondylitis, one associated with typhoid and the other with paratyphoid infection. In both he was able to demonstrate the existence of bony union between the lumbar vertebræ by means of radiograms. The exact seat of this change is difficult to state. In one it filled in the intervertebral space between the second and third lumbar vertebræ, apparently being deposited in the lateral ligament and forming bony union between the two vertebræ. In the second the process extended from the second to the fifth vertebræ, and appeared to involve both the lateral ligaments and part of the intervertebral discs. So far these are the first reported instances of definite changes being found by radiograms. Cutler reported a case with negative findings.

The condition usually appears during convalescence, and in three-fourths of the cases the patients have been males. Pain is usually the principal symptom, being felt in the lower dorsal or lumbar regions, and may radiate round the body or down the legs. It is generally aggravated by movement. The character of the pain varies greatly, sometimes being present in violent paroxysms for hours with periods

in which it is described as a dull ache. It is not easily influenced by drugs, and even morphine may have little effect. Neurotic features may be marked and come on rapidly, the patient becomes hysterical, and is transformed into a whining, complaining, individual with whom it is difficult to have any patience.

In addition to pain there may be alteration of sensation, either paræsthesia or anæsthesia. Pain on pressure over the muscles and nerves, spasms in muscles, and alteration in reflexes have also been noted, suggesting organic changes. Weakness, atrophy, and muscle spasm have been observed and the power of walking may be very slowly regained. Spasm is usually most pronounced in the muscles of the back. In the spine there are variations from tenderness on pressure to the presence of deformity and deposit of new bone. Fever of an irregular type has been observed in about half the cases, and must be regarded as evidence of an organic process.

The duration varies from two weeks to several months, and as much as two years has elapsed before the full working capacity has been recovered. Once begun, improvement is usually rapid.

The explanation of the condition is at present somewhat hypothetical. It seems probable that it is due to the action of bacilli on the bones, and, like other bone lesions in typhoid, often occurs late. The type described does not seem to differ from that found in osteo-arthritis, and in such cases it seems probable that an infective agent may also be the ætiological factor.

Loewenthal and Wiebrecht. "On the Treatment of Tetany by Parathyroid Preparations." *Deutsches Zeit. fur Nervenheilkunde,* 1906, H. 5. 6.

Experimental work has led to the view that tetany is due to a disturbance of function of the parathyroids. The proof of the relationship of these conditions in man is still lacking and the writers have therefore studied the influence of parathyroid preparations on the disease.

They find a favourable influence is exerted in many but not all cases of the disease. They believe that the good results reported in some cases of tetany from thyroid preparations is really due to the admixture with parathyroid. Four cases are reported supporting the views expressed.

Francois Moutier. "La Fievre Metapneumonique." *Revenue de Medicin,* September 1906.

Moutier draws attention to a short febrile stage frequently following the crisis in pneumonia and coinciding with the continued and pro-

gressive improvement of the patient. This elevation supervenes most frequently on the third day after the fall to normal, but it may occur earlier or later. The temperature rises to from 99½ to 100½ for several days, and then again falls rapidly, or by lysis, to a subnormal point. The rise of temperature is not associated with any other unfavourable symptom. Resolution proceeds satisfactorily, the pulse rate rises very slightly, the urinary excretion and the chlorides increase and the leucocytosis disappears.

Although this ephemeral fever must have been frequently noted by clinicians, Moutier points out that it has almost escaped attention in the literature. He quotes Fisher of Philadelphia as almost the only writer who has devoted any attention to the subject, and agrees with the hypothesis on which this writer explains the ephemeral rise. Experimentally it has been shown that albumoses withdrawn from hæmorrhagic foci are capable of causing slight elevations of temperature, and it is probable that the absorption of such bodies during resolution is responsible for the meta-pneumonic fever. Moutier suggests that the destruction of pneumococci or the enfeeblement of their poison may also play a role in producing this condition. Of forty cases this meta-pneumonic rise was noted in ten. F. G. F.

The Abdominal Reflex in Enteric Fever. Rolleston. *Brain*, Part CXIII, 1906.

Rolleston's observations were made upon 60 patients of all ages admitted into the hospital certified as having enteric fever. The diagnosis was confirmed in 45 of the cases. Of this number 31 were without the abdominal reflex—while in only 3 cases was it unaffected—the remainder all having it more or less impaired. Rolleston concludes that in enteric fever this reflex is affected in a large number of cases, and it would appear that when other conditions, as for instance appendicitis and nervous diseases, can be excluded, the absence of the reflex, when pyrexia is present, should suggest enteric fever. W. F. H.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

Breinl and Kinghorn. "An experimental study of Spirochæta Duttoni." *Memoirs xxi. Liverpool School of Tropical Medicine.* 1906.

From an attack suffered by Dr. Breinl, they found that the blood of patients suffering from relapsing fever is infective for susceptible an-

imals during the periods of apyrexia. They find that Africa suffers from European tick fever by its shorter attack; it begins with malaise, then suddenly headache occurs with pain in the spleen and bones, and vomiting and diarrhœa often precede an attack. Chilly feelings are common; there is a rapid increase in size of the spleen, and the extreme tenderness over it is characteristic.

When animals were infected, it was found that nearly all the laboratory animals were susceptible, the cat being notably refractory. In most cases, too, the younger animals were the most readily inoculable. Guineapigs and rabbits did not take the disease from the bites of ticks but were readily inoculated. In some cases there was persistence of the parasite for many months, showing that the disease could be both acute and chronic: no notable differences of virulence were observed by passage through series of animals or through man. The attack confers a certain degree of immunity, so that animals re-inoculated up to seven months after the attack, contracted the disease slightly or not at all.

In the direction of treatment a number of fruitless experiments were made with immune and hyper-immune serum, the latter is the serum from an animal repeatedly inoculated. Serum from horses, monkeys and rats was used, but no curative or preventive results were obtained, although if large doses of serum were used, the incubation period was lengthened, and to some slight extent the severity of the disease mitigated. They found, too, that there is a natural immunity in young, born of infected mothers, but this is very transitory: this immunity might be expected, as the foetus is generally infected, though the foetal blood contains the parasite in much smaller quantity than the maternal blood. With a view to determine the part played by the spleen in spirochætal infections, splenectomies were performed at different stages of the disease. Soudakewitch has considered that the spleen was to the last degree important in the deduction of the spirochaetes, but Breinl and Kinghorn by careful attention to asepsis proved the contrary, for in splenectonised animals the organisms disappeared quite promptly, and relapse occurred as usual, and active immunity against re-infection is not influenced by the absence of the spleen.

Research on the morphology of spirochœta duttoni are not yet completed, but Dutton and Todd have thought it likely a development process occurs in the tick; an infective stage of the organism can pass through a Berkefeld filter which prevents the passage of Bacillus prodigiosus.

While the above researches were in progress, the authors experimented with sp. obermeieri and found the animal reactions quite different from

those obtained with sp. duttoni, and found moreover, contrary to Horry and Knapp that even in the majority of cases, relapses occur with sp. obermeieri.

Breinl and Kinghorn. "A new spirochæta found in a mouse." *Lancet,* Sept. 8, 1906.

This publication inadvertently anticipates W. C. Wenyon of the Pasteur Institute, Paris, who is working on the same organism. It is apparently pathogenic to mice and rats: the authors have proposed for it the name of sp. laverani.

Dutton, Todd and Tobey. "A comparison between the Trypanosomes present by day and by night in the peripheral blood of cases of human trypanosomiasis."

This is a more detailed study of blood taken from cases on the Congo, and resulted in the conclusion that no marked qualitative or quantitative change, corresponding to day and night, occurred in the blood in these cases.

Mole. The Lesions in the lymphatic glands in human trypanosomiasis.

The author concluded that in early stages there was a great increase in the number of germ centres, which lessen greatly as the disease progresses, with a gradual transition from the ordinary lymph node to a hæmolymph gland. It is true that the significance of the hæmolymph gland is yet unsettled, but it is supposed that it has an important concern in hæmolysis and leucocyte promotion. Ultimately, sclerosis of the gland occurs, with very marked sinus formation. It seems unlikely that there is anything definitely characteristic in these changes.

Dutton, Todd and Tobey. "Concerning certain parasitic protozoa observed in Africa."

This report, which does not readily lend itself to review, is a brief statement of many different forms of protozoa, malarial, trypanosomatic and spirochætal observed in different wild animals and man. In some cases, the mere observation has been made, without definitely classifying the organism, and much material is here available for work which lack of assistance has hitherto prevented.

Williams L. A. and Williams R.S. "Attempts to cultivate spirochæta duttoni."

For short periods, up to four weeks, these investigators were able to preserve the organism, by means of defibrinated blood, at room temperature. The period of the attack at which the organism was taken

from an animal seemed of no importance, with reference to its subsequent viability.

BREINL, KINGHORN AND TODD. "Attempts to transmit spirochætes by the bites of cimex lectularus (bed bug)."

Having obtained a positive result from this experiment, a careful series of attempts was made to verify it, but the results of careful work by the observers themselves have been utterly negative, and they are forced to the conclusion that error arose, in the first instance, through laboratory servants who carried out the feeding at the time of the positive result.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The seventh regular meeting of the Society was held Friday evening January 4th, 1907, Dr. F. G. Finley, President, in the Chair.

J. E. LABERGE, M.D., read the paper of the evening on "How to improve our milk supply," this being the gist of a paper given before the French Medical Society. This Society had appointed a committee to take up this question fully, and at the close of the paper Dr. Laberge asked that a like committee be appointed from the Medico-Chirurgical Society to confer with their French confrères as to the best means of insuring a proper milk supply to the city. Accordingly Drs. Blackader, Adami, Evans, Fry and Archibald, with power to add to their number, were appointed a committee.

After referring to the great infant mortality in various centres to the results of analysis of many samples of milk examined by him, and to the different methods of adulteration practised by unscrupulous milkmen, Dr. Laberge would recommend for the improvement of the milk supply, 1st, that the public be educated to the necessity of obtaining a pure milk supply and of the proper methods of keeping it in the house, and that milkmen be educated to the necessity of producing such a pure milk to meet this demand; 2nd, that the Government be induced to take up the question, appoint inspectors for all districts, and if necessary to allow only those producers who possess certificates from such inspectors to bring milk into the city; third, that proper railway transportation be provided with refrigerators on the cars for the cans of milk, and 4th, that special places be provided for storing of such milk after leaving the trains.

D. J. Evans, M.D. Dr. Laberge in his very excellent paper has distinguished between two factors in the problem. One is the pure milk-supply question, and the other is the infantile mortality. In this city the two, as they do always, overlap, but the lack of pure milk is not the sole cause of infantile mortality in this city. One of the most important steps is the education of the public, and I feel that too much stress cannot be laid upon this aspect of the question. We must keep iterating and reiterating the necessity of a proper milk-supply, the proper care of the milk in the home, and the proper care of the young infant. The question of pure milk is the one that is particularly before us to-night. The problem is extremely complex in this city. Dr. Dagenais has pointed out the fact that we are drawing our milk-supply from a radius of one hundred miles, and no small quantity comes from the Provinces of Ontario, by boat in summer and by train in winter, and from nearer the city, it being carted over the roads. There are said to be in the city of Montreal 492 milkmen. The milk is supplied in cans of the most antiquated and unsuitable pattern in a large proportion of cases. Only two days ago I had occasion to see one of the five gallon cans of a large dealer in the city, and it was in a most filthy condition. This thing in winter when the temperature is low is bad enough, but in summer with a high temperature no effort is made to improve matters. Reform will affect the producers, the transportation facilities and the consumers. We find that the majority of the farmers are ignorant or careless. A few are doing the best they know how, though the larger mass of them practically have no idea how to produce a high class milk. Railroad facilities are very inadequate. The milkmen complain that their cans lie sometimes in the station for over two hours before they can get them into their carts. Consumers are ignorant of the necessity of refrigerators and cleanliness in keeping milk in their houses. Means must be obtained to control all these sources of contamination before infantile mortality will be reduced. The problem before the Committee is a very extensive one and will require careful study before any suggestions of a practical nature can be expected. I feel that it would be a privilege to serve on that committee.

J. E. Laberge, M.D. I have few words to add to what has already been said. I am pleased to have brought up this question before you, and the discussion shows the interest you will give to the subject, and it already seems assured that our milk supply will be improved. As to the previous attempt of Professor Adami and the late Dr. Wyatt Johnston to improve this matter, it has by no means been a failure. From

that time it has always been more or less before us, and now we are once more bringing the matter forward. Even if it takes two years more to bring the matter to perfection it will be time well spent.

EMBOLISM GF THE HEART.

H. M. Little, M.D., presented this specimen before the Society and gave the following history of the case. Woman, aged 26, entered the Maternity Hospital about 34 to 36 weeks pregnant, October 9th. She had had three hæmorrhages, September 5th, October 2nd, and 9th. She was in the hospital from October 9th, to the 16th, when she had the fourth very severe hæmorrhage. She was very pale. The rate of the child's heart rose to 170, and on this account it was decided to deliver her. The cervix was dilated manually, and a living child extracted. The patient apparently made a fair recovery; the temperature, after a slight elevation on the 2nd, 3rd, and 4th, days, came down to normal on the 5th, and 6th, remaining so until her decease on the 10th, day. The pulse however was more rapid than normal, and on the third and fourth day she complained of some headache. On the morning of the 10th day examination showed the uterus to be in good condition, and she was told she might get up that afternoon. On attempting to get up she suddenly became cyanosed and gasped for breath. Stimulants were given at once, and she rallied; but within five minutes she had another seizure, and died almost instantly, the heart stopping absolutely though there were a couple of spasmodic attempts at respiration.

About six hours afterwards Dr. Klotz performed an autopsy and found in the heart two emboli about the size of the little finger. These had passed from the inferior vena cava into the right auricle down to the ventricle, and were blocked just at the entrance to the pulmonary artery which was absolutely occluded. The distal end of the embolus corresponded to the proximal end of the thrombosis in one of the uterine veins in one of the iliacs on the left side of the pelvis, which in turn was continuous with the thrombi at the placental site.

According to von Herff in von Winckel's Handbuch, the most recent contribution to the subject of puerperal thrombosis, about 2 percent. of all patients show evidence of thrombosis in the puerperium; 3 percent. have pulmonary embolism. It is the second most frequent cause of death in the puerperium in Basel where .05 percent. of all puerperal women die of pulmonary embolism. Von Herff believes that not all thrombi are of infective origin and used the doubtful argument that the organisms most frequently found where infection develops, viz: the streptococcus and the gonococcus, are rarely noted in these thrombi, and that the so-called saprophytes are the most frequent offenders where bacteria

are present. The correct belief here is that thrombi are due to infection with degeneration of the intima of the veins. In the case under consideration there were several agents which might have been accountable for a mild infection, primarily the mode of dilatation of the cervix, and the delivery. It is interesting to note that the embolism did not take place in the morning at the examination, but rather when the patient attempted to get out of bed. This form of embolism would appear to be singularly rare. In looking over the literature I have been unable to find an indentical case.

Oskar Klotz, M.D. There was a thrombus extending outwards from the uterine veins, towards the internal iliacs. Neither of the thrombi in the internal iliacs reached as far as the bifurcation. This however does not exclude the possibility that the thrombus originally reached the common iliac. On the right side we did not find a jagged end to the clot but the thrombus was covered with post mortem clot, and tearing that away one could not tell definitely whether the end had been broken or not. The thrombus in the pelvis was existent only in the two internal, not the common iliacs.

MILIARY TUBERCULOSIS OF THE CHORNID.

G. H. Mathewson, M.D., read the report of two cases, which appear at page 117.

F. G. Finley, M.D. Dr. Mathewson is to be congratulated on obtaining these two cases. I have never seen any, and I do not think it has been recognized very often. It certainly was the means of diagnosing the general condition present in one case.

THREE CASES OF PURULENT CONJUNCTIVITIS WITH DIFFERENT ETIOLOGICAL FACTORS.

Hanford McKee, M.D., read this report which appears on page 125.

Geo. H. Mathewson, M.D. The cases brought forward by Dr. McKee are very instructive in that they show that the clinical appearances in cases of conjunctivities by no means enable one to diagnose what microorganism was the cause the disease in any particular case. This fact does not seem to be generally recognized by the general practitioner. In the past few months we have had many cases bearing on this point, notably a case with very slight local symptoms, where gonococci were found in great numbers, and a case of membranous conjunctivitis due to a small coccus. It is well known too that one can have dipheritic conjunctivitis without the formation of a membrane. Where at all possible, then it is well to make at least a smear for immediate microscopic examination in all cases of conjunctivitis; for an infection which is pursuing a mild course in one patient may cause fulminating symptoms if conveyed to a second patient.

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PERFORATION IN TYPHOID FEVER.

BY

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This accident is so frequent a cause of death in typhoid fever that it merits our most serious consideration. In recent years, operation has resulted favourably in so many cases that there is good reason to look for much more favourable results as the conditions become more thoroughly understood and the necessity for prompt action better realized.

The frequency of perforation varies considerably in different seasons, just as does the severity of the disease itself. It occurs in about one and a half to three per cent. of all cases of typhoid fever. In the Toronto General Hospital during the last two years the number has been 5 in 240 cases, nearly 2.1 per cent. There were in all twenty-five fatal cases, 10.4 per cent., so that perforation occurred in 1 in 5, or 20 per cent. of the fatal cases. This is considerably higher than the general average percentage of reported cases. In 4680 autopsy reports examined by Fitz, perforation occurred in 6.58 per cent; and in the 2,000 autopsies at Münich there were 114 perforations, 5.7 per cent. However, in the Johns Hopkins' series, perforations occurred in over 30 per cent. of the fatal cases.

Without studying our own statistics, we can scarcely realize how frequently this calamity overtakes our patients; at least we will find it difficult to have before our minds in each case we see the risk of perforation in that individual case, and in the event of the accident occurring, that his life will probably depend on its early recognition, as only in prompt action on our part lies any hope of saving his life.

The character of the perforations is variable and has a marked bearing on the symptoms. First, the perforation may be large, owing to the slough extending through the bowel, including the peritoneal coat.

Then, as the slough separates, the intestinal contents escape early and freely into the peritoneal cavity and there is rapid diffusion of infection throughout the cavity by means of the lymphatics. More frequently, separation of the slough is delayed; in that case the diffusion of infection is also delayed so that the symptoms are at first local and correspondingly milder. *Secondly,* from extension of the ulcerative process through the peritoneal coat the perforation may occur as a single small opening, usually at the bottom of a small ulcer formed by the destruction of a solitary gland; or a number of small cribriform openings may form at the base of a sloughing Peyer's patch. In such cases the peritonitis will usually be localized at first and become rather slowly diffused. A *third* form is described; after the sloughing and ulceration has extended to the subserous tissue rupture of the serous coat may result from various causes, such as the tension of peristalsis excited by irritant contents as milk curds and other undigested food; pressure on the abdominal contents during straining at stool or by external pressure; injury by coarse particles in the contents of the intestine, as the outer coat of grain in unstrained gruel, etc. In these cases, the opening being large and suddenly formed, the intestinal contents escape rapidly and widespread infection of the peritoneum quickly follows.

In the next place the symptoms of perforation vary according to the situation which the perforated bowel occupies in the abdominal cavity. The nearer it lies to the central part of the abdomen the more fulminating will be both the local and constitutional symptoms. Owing to its proximity to the central nerve structures in the abdominal cavity, the pain will be more sudden, extreme, and diffuse, so that it will give no indication as to the seat of the lesion. We meet with cases of appendicitis from time to time with symptoms of a similar character. In such cases the appendix extends far inwards into the umbilical region, and when it ruptures or becomes suddenly gangrenous there is sudden and virulent peritoneal infection. A similar condition may result from rupture of a septic gall-bladder. Any of these accidents will be rapidly followed by meteorism and spasm of the abdominal muscles. Shock will be extreme and sudden in development. Furthermore, owing to the great vascularity of the central portion of the peritoneal cavity, great facility is afforded for absorption, consequently toxæmia takes place with extreme rapidity. On the other hand the nearer the perforated bowel lies to the periphery of the abdomen the more focal will be the attendant phenomena, and the more accurately can it be localized by subjective as well as objective symptoms. In such

cases, the local and constitutional symptoms are both milder and more gradual in development.

Perforation may occur in any kind of case, even the mildest ambulatory one, but, in common with other accidents, it is much more frequent in the severe cases with active abdominal symptoms such as diarrhœa, meteorism and hemorrhage—all symptoms of extensive and deep ulceration. This greater liability to perforation in diarrhœa cases is well shown in the Johns Hopkins' Hospital service in which the accident occurred in twenty out of one hundred and fifty-seven cases with diarrhœa—12¾ per cent, as against ten in six hundred and seventy-one non-diarrhœa cases, 1¾ per cent. Our own experience is similar; in four out of the five cases there was marked diarrhœa—in some of them caused by the daily administration of purgatives; in the fifth case, sent into the hospital after perforation occurred, there was moderate diarrhœa and slight hemorrhage. It is probably a matter of indifference so far as the liability to perforation is concerned whether the diarrhœa is due to irritation of the bowel by the toxins of the disease, by irritating bowel contents from injudicious diet, or by purgative drugs. The symptoms depend not only on the situation and nature of the perforation but also on the severity of the general symptoms and the degree of toxæmia. In those with much prostration and blunted perceptions the symptoms may be quite masked, especially if meteorism is marked, so that the occurrence of perforation cannot be more than suspected. In a second class of cases, rare ones in which there is much toxæmia but without mental obtuseness, the local reaction may be so slight that there are no abdominal symptoms to mark the occurrence of the accident, just as may occur in septic peritonitis from other causes—e.g. strangulated bowel or gangrene of a fallopian tube. In a *third* class, milder cases in which neither the mental nor physical perceptibility is much, if at all, obtunded, the symptoms are practically always frank. To this class probably belongs the majority of all cases of perforation; at all events, it is in these cases that there is at least a fair chance of recovery if treatment is prompt. Fortunately, the great majority of cases of perforation occurring in this country, at least, for several years past, belong to this class. Cases of extreme toxæmia with marked meteorism, profuse diarrhœa, muttering delirium, and subsultus tendinum are of rare occurrence.

It is worthy of note that the immediate symptoms are due to perforation and local irritation of the peritoneum, while the later ones are caused by the peritonitis and septic absorption caused by infection by pyogenic organisms and not by the typhoid bacillus.

If we examine the various works in medicine, large and small, we will find that the majority of writers describe the onset of the symptoms of perforation as marked by extreme severity—sudden acute pain, rigidity of the abdomen, some fall in temperature, acceleration of pulse, anxious facies and rapid onset of collapse. So far as my own experience goes, only a small minority of cases show this extreme degree of disturbance. It is of great importance that we should appreciate the fact that the symptoms of perforation may at first be only few and moderate in degree; otherwise the condition will not be recognized at once and therefore proper treatment will be delayed. It will not be amiss to emphasize the fact that every minute's delay adds to the gravity of the condition and lessens the probability of recovery, one might almost say, in a geometrical ratio.

We know that the phenomena of typhoid fever may vary very much in different seasons or in cycles of seasons. A decade or two back, the disease in Toronto was marked by much greater severity than it has been of late years. In warm climates it is probably a much graver disease than in our temperate climate. In consulting the Johns Hopkins' Reports one is struck by the almost uniformly severe course of the disease in almost every case of perforation—high temperature, rapid pulse, diarrhœa meteorism, and delirium. We see few such cases; as already said, ours are nearly all of a much milder type, although often greatly protracted. Notwithstanding this, our percentage of perforation cases is nearly as high as in the more severe types.

Of the symptoms of perforation, *pain* is much the most important and constant. In the milder classes of cases that occur in this country, it is practically never absent. It may be the only symptom. It may be so slight that little complaint is made of it, even by a patient otherwise in good condition, but it is always persistent, and usually but not necessarily paroxysmal. This one character of *constancy* should be emphasized as it stamps the pain as due to an organic lesion and not to functional spasm. Persistent pain is the only symptom I have never known to be absent in perforation of typhoid fever in the milder type of cases we are discussing. Of course my experience is relatively small, but in it are two cases illustrative of the course in many others. The first was that of a case of ambulant typhoid in a man aged 48. He had been under treatment for a dyspnœa due to a syphiloma of the apex of the right lung. Three months later, after he had recovered from the dyspnœa, he sought advice for malaise and loss of appetite; no cause for it being apparent, it was thought to be due to the effect of the potassium iodide which he was taking. The drug was stopped. He did not report

again for two weeks. When seen then he said he had had moderate pain in the abdomen for two or three days. He was found sitting in a chair, looking much distressed. There was fluid in the abdomen to the level of the anterior superior iliac spines. The abdominal wall was not tense nor was there great tenderness. Death occurred next day and at the autopsy two small typhoid ulcers were found in the ileum and a perforation 1 mm. in diameter at the bottom of one of them.

The other case was even more instructive. It was that of a man, aged 32, in the General Hospital a few years ago. His illness was moderate in degree; there was slight diarrhœa but the abdomen was of normal appearance and his mental condition was quite clear. In the third week, one afternoon while I was in the hospital, he felt a rather sudden, though not severe, pain in the lower part of the abdomen, but not distinctly localized. There was no tenderness or increased tension in any part of the abdomen, nor change in temperature, pulse, or respiration, or in the facial expression. He himself regarded the pain as of little moment. The instructions left were that he was to have plenty of water but no food nor any anodyne; he was to be closely watched and his condition reported in three hours—sooner if he were worse, the intention being to have an operation done if even this moderate pain persisted. He was reported in the evening as free from pain, and concern regarding him was dismissed. On seeing him next day, there was no apparent change in his condition but he said the pain still persisted. It was then found that through some misunderstanding, morphine, grain ¼, had been given the evening before. His pulse was about 90 and temperature 102 F., the same as for some days previously. The abdomen was flat, quite soft everywhere, not tender nor presenting any abnormal condition. My colleague, Professor Cameron, saw him with me and we concluded that the persistent pain, though slight, must be due to an organic lesion and, therefore, almost certainly to perforation, and we decided to operate. An oval perforation, about 1 cm. in the long axis, was found about thirty inches above the ileo-cæcal valve and the coil of intestine in which it occurred lay down in the pelvis behind the bladder. The general peritoneal cavity was fairly protected by the filling of the inlet of the pelvis by other coils of intestines. By this time, however, twenty-six hours after the onset of the pain, and therefore after the occurrence of the perforation, infection had been carried up to the root of the mesentery by the lymphatics which were marked out by red striæ, and it was to this infection that the fatal result four days later was due. Had the operation been done early, as intended if the pain persisted, there is no reasonable doubt that he would have recovered.

These two cases clearly emphasize the importance of even slight pain, if persistent, notwithstanding the absence of all other symptoms and signs. The first cause probably had no other symptoms and the second certainly had not.

The pain signifies local peritoneal irritation by whatever cause produced whether with or without perforation. A variety of conditions may be concerned in causing the pain to be slight and in preventing the occurrence of other phenomena. The infective bacteria may possess little virulence; partial adhesions may circumscribe the area of infection and so delay, if it does not prevent, the diffusion of the infection in the peritoneum; the patient may possess a sufficient degree of immunity to inhibit the activity, if not arrest, the growth of the infecting bacteria; and further, some people are but little sensitive to painful impressions.

However, sudden persistent pain in cases of typhoid fever is not always due to perforation as infection may occur without that accident. This was well illustrated in the case of a woman in the hospital lately; she was apparently suffering from typhoid infection. She had had a miscarriage two weeks before being received into the hospital; she was then suffering from a febrile condition which had existed probably from the time of the miscarriage, but apparently not due to it. The leucocytes were only 3,900, the spleen was large and the Widal reaction was reported well marked. At 9.30 on the evening of the 16th day after parturition and the second after admission to the Hospital there occurred a sudden pain, felt chiefly in the upper zone of the abdomen; it was persistent with fairly marked paroxysms. The abdomen was distended and somewhat tense, but an enema reduced it considerably. On seeing her an hour after the onset of the pain, the abdomen was rounded but quite soft in all parts; it was tender, especially in the upper zone; the spleen and liver were palpable; there was free sweating, especially of the face which was slightly cyanotic and its expression haggard. The pulse was very frequent and weak, temperature 104, respiration rapid and shallow. The leucocytes were then over 11,000 and there was some fluid in the peritoneal cavity. Sudden acute infection of the peritoneum had evidently occurred, and, as she apparently had typhoid fever, perforation was the most probable cause of it, although, of course infection may occur without perforation. Dr. Primrose saw her with me and we deemed immediate operation advisable, as probably giving her the only chance of recovery, although the outlook was anything but favourable. On opening the abdomen, some brownish serum was found in the cavity, the intestines in the upper

part were decidedly congested, but the ileum, appendix, colon and pelvic organs appeared healthy to the hurried examination that had to be made, as she was bearing the anæsthetic badly. She recovered well from the operation and was somewhat better next day, but died the day following. An autopsy was not permitted. The diagnosis is quite uncertain. There was no history of a previous attack of typhoid fever, so that the low leucocyte count and the Widal reaction were strongly suggestive although not conclusive evidence of typhoid infection. However, that does not discount the value of persistent pain as a sign of peritoneal irritation; it is important to note that in this case it was not attended by any tension of the abdominal muscles.

Even in some graver cases of perforation the symptoms are not very marked nor their development rapid, although the pain is always of sudden onset and persistent; other symptoms may appear gradually. In a lady, aged 65, seen lately, the symptoms were not severe. Moderate persistent pain began suddenly, was later followed by some distension of the abdomen and slight tension of the muscles, chiefly in the right lower quadrant. There was some tenderness in all parts of the abdomen, but somewhat more marked in the same region. The pulse and temperature had not been disturbed; the general appearance had not been altered much and there was no sweating of the face or elsewhere. An operation was done as soon as possible. The peritonitis was slight and confined to the cæcal region, yet the abdominal tenderness had been general. In the ileum was found a large slough extending through the peritoneal coat but as yet not separated. This accounted for the moderation of the symptoms and their gradual development. The sloughing area was turned inwards and the wall of the bowel stitched over it. The rest of the bowel seemed in good condition. She did very well for two days, when there was again a rather sudden accession of pain, vomiting, increased distension and prostration; this was considered to be probably due to fresh infection at the sutured surfaces. She died two days later. At the autopsy the sutured peritoneal surfaces were found united and in good condition; a short distance above this part were two fresh sloughs similar to the first one. Without these additional perforations she should have made a good recovery. It is but another illustration of one of the many pitfalls besetting the path of even the most promising cases of perforation.

I have purposely restricted my remarks to the more moderate cases in which the patient's perceptions are sufficiently clear to appreciate anything that causes discomfort and to complain of its occurrence—by far the largest class met with in this country. In them, pain is the

one symptom that may be said to be never absent; it may be only slight, but whether severe or slight it is, with very rare exceptions, persistent, and therefore not due to functional disturbance; other symptoms usually follow, but more gradually. Of these, abdominal tension localized or general, is the most common and important. It may, however, be so slight as only to be appreciated on careful examination.

Recently, increase in blood pressure has been found to occur in all cases of peritonitis. I have no doubt of the correctness of the observation, although I have not had the opportunity of testing it.

The value of leucocytosis in the diagnosis of perforation is very great. Leucocytosis begins promptly with the occurrence of perforation or of peritonitis from any cause; this was well shown by the case above referred to in which at the operation no perforation was found. In some cases, probably only in those in whom toxæmia is marked, the leucocytosis may disappear very early, so that its absence will not exclude the possibility of perforation.

In these milder cases, there is probably seldom any disturbance of the pulse, temperature or respiration, and with such moderation in the symptoms general depression would be gradual and collapse a late phenomenon if it occurred at all. Some of these milder cases are probably due to typhoid perforation of the appendix.

My own views as to our duty in these cases of perforation are perhaps best illustrated by the regulations governing the management of cases under my care at the Toronto General Hospital. Any case of typhoid fever in which pain occurs is to be reported at once to the house physician, who makes an immediate examination. A complete record should be made of the condition and all changes noted as they occur. If the attack of pain is unmistakably due to perforation, or even if there is good reason to fear that such is the case, immediate notice is to be sent to me and to my surgical colleague, the aim being to have an operation done immediately so as to prevent peritoneal infection. So important is immediate operation that it is better done at once even by a member of the house staff rather than wait unduly long for the services of one of the surgical staff.

In mild cases in which there is only a possibility of perforation having occurred, the patient is to be closely watched by the house physician. All food is to be stopped, no anodyne of any kind is to be given, but water is allowed to be taken freely. If the pain persists for an hour or so, then notification is to be sent out as in the undoubted cases.

There seems to be no doubt that it is imperative to act at once when symptoms of perforation occur in these milder cases of typhoid fever. I think this is imperative even in the cases occurring in out-of-the-way places where expert surgical aid cannot be promptly obtained. Three of Shattuck's (Trans. of the Association of Amer. Phys. Vol XV, page 111) cases were such as should have recovered had they been operated on early. He says they show that fatal peritoneal infection may occur within one or two hours after perforation. However, these must have been cases in which the infective organisms were extremely virulent. In other cases, on the other hand, recovery follows operation done even after general peritonitis has occurred; in these cases the infection must be less virulent and the immunity of the patient may be greater. Similar results follow non-typhoid perforation of other organs, notably the appendix. Every physician should be quite prepared to operate himself under such circumstances. The operation is not so difficult that a capable physician should not be able to deal with it practically as efficiently as the most expert surgeon. The chances for the patient operated on immediately by the physician are very much better than for those in whom operation is delayed for a few hours in order to procure the assistance of even the most capable surgeon. No doubt such prompt action in country places, where assistance is not available, entails grave responsibility on the physician in charge. In many cases the diagnosis cannot be made with absolute certainty, but, fortunately, even if there is no perforation, the operation in most cases does not seem to be followed by material injury to the patient's condition. Under the most favourable conditions only a moderate percentage of the cases recover and the physician who operates promptly may be blamed by the friends for the fatal result. Notwithstanding all this, in a case with symptoms strongly indicative of perforation, it is a risk and responsibility that he cannot well evade if he is to do his whole duty.

When there are decided symptoms present there can scarcely be a question that it is in the patient's interest to accept the danger of an unnecessary operation rather than the infinitely greater one of a perforation left untreated; the former is attended by more or less danger, while the latter is practically hopeless.

In the cases of profound toxæmia or marked typhoid state in which there has been great prostration with meteorism, delirium, and diarrhœa, perforation is often accompanied by early and marked collapse. In these cases it may be questionable whether operation should be done before the symptoms of shock have at least partially

passed off. In such cases either course is beset with difficulties; on the one hand, if we wait for shock to pass off there is danger of peritoneal infection spreading widely, and on the other hand, immediate operation may cause a fatal termination through shock. Each case will have to be determined on its own merits, but even here I think that, with rare exceptions, it is in the interest of the patient that immediate operation should be done, as the danger from peritoneal infection that follows so rapidly on perforation is probably a greater menace to life than even the shock. In these severe cases, even with immediate operation, the percentage of recoveries will always be very slow.

In order to carry out such prompt treatment in cases of perforation it is necessary not only that each case shall have the attention of a well-trained nurse but also that the services of the physician shall be at once available when required. It is difficult to make the public appreciate the necessity of such vigilant expert attention, especially as it will materially add to the expense in caring for each individual case.

As the accident occurs in only about two per cent of cases, the liability to it in any given case, especially if running a mild course, is easily overlooked even by the physician, so that the public can scarcely be blamed if they fail to realize the danger. It is, however, essential that the physician has a clear appreciation of all dangers that beset the path of even the mildest case of typhoid fever.

APPENDICITIS.

BY

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The introduction of this well-worn subject would seem to call for some apology, were it not for the necessity of keeping constantly before the profession the uncertainty of its behaviour. I may say, I think, with a certain amount of authority, that the laity is keenly alert to the fatality in neglected cases of appendicitis, and fully appreciates the few risks encountered in the cases operated upon early.

It may not be too much to say that the average public possesses a very intelligent comprehension of the subject, and it is not an uncommon experience to find people suggesting operation and insisting upon it before the regular medical attendant had even considered it. Time and again I have found patients presenting themselves at the hospital

Read before the Rensselaer County Medical Society, Oct. 1906.

for operation independent of any influence exercised by their physician. This does not come about from any lack of competency on the part of the medical adviser; for the average physician is notoriously competent, but is due to the fact that the public appreciates the uncertainty of the outcome. Every surgeon of experience finds himself interrogated by anxious friends as to whether such an operation, if done earlier, would have materially effected the result, and in justice to himself in the art which he practices, the question must be truthfully answered. The risks surrounding the performance of surgical work are sufficiently hazardous without courting complications, or adding difficulties to the situation, which would jeopardize a favourable outcome. I think I can say, without much fear of challenge, that the man who advocates an appendectomy as soon as a diagnosis can be made will never regret it. But the man who waits a few days, until the products of an already ruptured appendix have created havoc to the peritoneum and a general toxæmia established, will certainly have some occasion for concern. It is a common experience to obtain a history something like this. The patient was taken ill with severe pain in the right iliac fossa—followed by some general abdominal discomfort, readily controlled by local applications and small doses of some opiate; no thermal or circulatory disturbance and no abdominal distension. Things travelled along in an uneventful way until the second, third, and maybe even the fourth day, when the countenance changed, some tympany occurred, and the blood current became more rapid. The examination in such a case readily discloses a general peritonitis and if one can get the patient—even at this time—something may be done, but unfortunately the "ice bag" and the "opium suppository" are still fashionable and often persisted in. When the abdomen is opened, pus pours out through the incision,—the intestines are plastered over with a fibro-plastic exudate, which may be stripped off in ribbons a yard long.

Now, what may we expect in such a case? This is no false picture; the canvas is as true to every day experience as the flight of time. Those of us who are dealing largely in abdominal work are keenly aware of the large percentage of suppurating cases that come to us, and not only suppurating but death indelibly stamped on their brow. Many appendices perforate with the first manifestation of pain, and in those cases no one can be blamed, inasmuch as it is impossible to get in ahead of the first symptoms. But when the diagnosis is made—instead of waiting for something to turn up, as Dr. Maurice Richardson has so aptly put it—advise an operation, and with this advice the responsibility is immediately transferred to the patient and his family.

In a community like this—where there are so many hospitals—it would not be difficult to spend a few hours each month in the operating room. There you will have object lessons presented which will bear greater fruit than any sermon I can preach. Notwithstanding the fact that the literature on this subject has been most exhaustive, the experience of the average hospital surgeon will show that 40 per cent of cases presented for operations are suppurative, and twelve to fifteen per cent of the total present a general suppurative peritonitis. In this latter group there is no effort to wall off the product; the contents of the appendix are poured out into the "abdominal cavity," and are free to travel where they please.

Now, we may ask ourselves—after a study of over a thousand appendectomies—what the conditions are which lead up to the perforation in the greatest number of cases. Perforation into the "peritoneal cavity" occurs most frequently in the primary attack, and is due in a striking number of cases to the presence of a fæcal concretion which once established, increases in size until the lumen of the appendix is completely plugged, and the distal end becomes converted into a closed cavity. The rest of the story is a gangrenous and perforated appendix. In those cases I am positive that very often the first pain a patient experiences is when the rupture occurs.

The localized pain and tenderness, which is so characteristic, unmistakable and ever present, in non-perforative appendicitis, is usually very soon supplanted by tenderness and pain extending throughout the whole abdominal cavity. The patient complains of the left side just as much as the right and frequently greater pain just above the umbilicus than anywhere else. The insidiousness of the condition, from the time of perforation until well-marked general conditions show themselves, may be exceedingly misleading. In many cases a chart is not much use to us; in fact we might better throw it in the waste paper basket and trust to our physical signs, which will not deceive us very often if we only look well. Time and again I have found the patients with a happy expression; no pyrexia or circulatory disturbance; expressing themselves as being very comfortable, when the abdominal cavity contained quantities of pus.

The rupture of any of the abdominal viscera into the peritoneal cavity must always be looked upon as a grave condition. The higher up the rupture, if intestinal—the greater the risk, and the more fatal the issue, if unrelieved. The peritoneum, however, is more tolerant and resistant to pernicious influences than most of us suppose. An opening for drainage is all that it asks to work out its own salvation. The simple

opening of the abdominal cavity with drainage, in gunshot and other wounds of the intestines, has been followed by recovery many a time, in spite of very imperfect surgical intervention, exemplified by fæcal fistulæ afterward, which closed spontaneously.

Drainage of the "abdominal cavity" for suppurative peritonitis has always been, and promises to be, a perplexing problem. Methods which facilitate the readiest drainage naturally suggest themselves as being the most effective. For this reason, a drainage tube which will permit of the easy escape of all material as rapidly as it is formed would seem the most practical. A double drainage tube—one exceedingly short, simply entering the abdominal cavity; the other possessing considerable length, sufficient to reach to the pelvic floor, has in my experience performed the best work. The use of gauze for drainage purposes is almost useless inasmuch as it constitutes a plug. Its removal is exceedingly painful; forming strong attachments to the abdominal viscera, and occasionally producing serious injuries to coils of intestine in its removal—even being responsible for fæcal fistulæ, and predisposing to serious post-operative adhesions. In women a pelvic drain will accomplish much.

It is doubtful whether the different positions suggested possess special advantages over the horizontal. The elevation of the trunk in the Fowler position would rather favour an accumulation of pus in the pelvis, while the former position will allow the readiest escape of all material from the different parts of the abdominal cavity; and it is a well-known fact that any fluid remaining free in the peritoneal cavity will naturally gravitate to the pelvis even in the horizontal position. Furthermore, if one considers the comfort of the patient he will invariably select a horizontal position rather than the inclined plane.

CERVICAL RIBS CAUSING PRESSURE ON THE BRACHIAL PLEXUS.

BY

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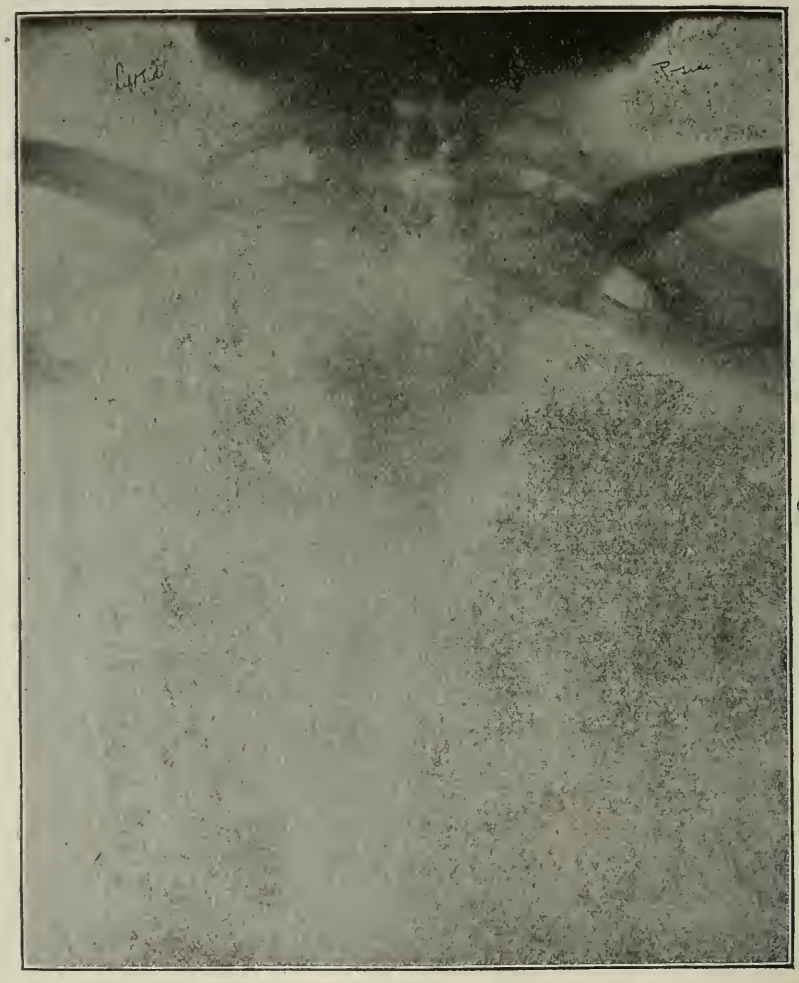
Since reporting before the Medico-Chirurgical Society in November 1906, a small series of cases with radicular palsy of the brachial plexus caused by cervical ribs, the following case has come under observation:

Mrs. O. P., 28 years of age, was referred to me by Dr. McCrae in the Medical Outdoor Department of the Royal Victoria Hospital, January 3rd, 1907. She complained of wasting of the right hand with numbness and pains radiating down the inside of the forearm; and cough and pains in chest. For the past five years she suffered from cramps

in the hands, not in one more than another, and sometimes these occurred in her feet as well.

Twenty-two months ago, when ill with pneumonia, she had some pain down the inside of the right arm, but this passed away on convalescence. Sixteen months ago, when the second to last child was born



she again complained of pain and numbness in the right hand and forearm. She describes these pains as like toothache radiating down the inside of the forearm from the elbow, affecting all the fingers. She found that this was relieved by elevating the arm above the head. The numbness was in the same region on the inside of the forearm. The cramps became more frequent and more severe, affecting the fingers

and thumb of the right hand, especially when she attempted to use her hand to grasp any object. The hand always felt colder but never became blue. It was more sensitive to knocks, etc., than the other hand. Wasting of the muscles was first noticed six months ago; and when her last child was born, four months ago, there was an exacerbation of all symptoms.

Patient has had a cough for about two years; pleurisy seven years ago; a small hæmoptysis last winter; pneumonia 22 months ago. Patient has been married four years, three children and two miscarriages. There is a family history of tuberculosis.

On examination: Cerebral functions normal. She has a bi-lateral apical lesion, tuberculous in nature, and the apex of the lower lobe is also affected on the right side. The cranial nerves are normal, though occasionally the right pupil has appeared a shade larger than the left; both react to light and accommodation.

Muscular System: There is wasting of the forearm muscles on the ulnar side of the flexor surface; two and a half inches below the internal condyle the circumference of the right arm is a quarter of an inch smaller than the left. There is also wasting of the small muscles of the thumb, the muscles of the hypothenar eminence, and the dorsal and palmar interossei. See figures. There is relative weakness in extension and flexion of the wrist and in ulnar flexion. In flexion of the fingers to make a fist there is weakness, especially marked in the index finger. Abduction and opposition of the thumb are practically nil; flexion of the thumb is weak. There is marked weakness in adduction and abduction of the various fingers, not so marked weakness in extending the distal phalanges on the semi-flexed proximal ones.

Sensory system: Subjective pain as already described. Objectively there is an area of analgesia and anæsthesia on the ulnar side of the forearm extending over the 5th and the ulnar half of the 4th finger. See figures. The reflexes are all normal.

There is no spinal curvature. No inequality of the pulse on deep inspiration. To faradism none of the small muscles of the thumb react; reaction is absent also in the interossei and in the flexor profundus digitorum and diminished in the flexor carpi ulnaris and the abductor minimi digiti. The other muscles react normally.

The skiagraph shows bilateral cervical ribs. See illustration. Of course the objection is inevitable that here pleuritic adhesions may have involved the lower roots of the brachial plexus, but I think this may be disregarded; first, on account of the great similarity in the history and the sensory and motor paralysis between this case and the cases I have

already reported, and second, if there were adhesions with the apical pleura one could not imagine elevation of the arm relieving pain. One would think it would rather increase it by traction.

In this case, as in the others, the paralysis, both motor and sensory, is confined to the distribution of the 8th cervical and 1st dorsal roots.

In my former report other etiological factors have been discussed. In this case I would like to add that loss of weight seems to have been a factor to a large extent.

PARTIAL GASTRECTOMY FOR PYLORIC CANCER.

BY

A. E. Garrow, M.D. and Chas. A. Peters, M.D.

J. R., 41 years old, was sent to the Royal Victoria Hospital on December the 15th, 1903, by Dr. Haldimand, complaining of pain in the upper part of the abdomen, vomiting and very obstinate constipation.

Until one year ago the patient enjoyed good health, then without any apparent cause, he was seized with severe pain in the epigastric region, accompanied by nausea, vomiting, some fever and followed by obstinate constipation but without jaundice.

During the year he had several severe, besides some milder attacks of this character, the last, four days before entering the hospital. With the exception of an attack of typhoid fever, when he was 28 years old, his previous history was of no moment.

Examination on entrance revealed a very tender mass in the upper right quadrant of the abdomen, suggesting a distended gall-bladder, but an exploratory incision on December the 18th, 1903, shewed that the swelling was due to a collection of semi-solid and greenish-yellow fluid lying partly in front of the peritoneum, extending upwards in front of the ribs, and intraperitoneally occupying a part of the sub-hepatic space, to the right of the gall-bladder, which latter was moderately contracted but contained no gall-stones.

There were numerous veil-like adhesions between the liver and omentum. The cavity was packed and partially sutured. The patient made an uneventful recovery and returned to his employment, enjoying excellent health for a period of fifteen months. The fluid removed from the abscess-like cavity was examined, and reported to be sterile.

In April, 1906, the patient consulted Dr. Peters for attacks of severe pain coming on two hours after eating, more or less persistent epigastric distress, eructations of gas and obstinate constipation, from which he had suffered for about 6 weeks. An examination of the stomach contents, removed one hour after an Ewald's test breakfast, was made.

The fluid measured 80 c.c., was hyper-acid but contained no organic acids. The inflated stomach was neither displaced nor enlarged, and an X-Ray plate shewed no abnormal condition.

Systematic examination of the stools was also undertaken and this led to the discovery of pieces of gauze which were passed on several occasions during June. This gauze did not resemble in texture that used for surgical dressings in the Royal Victoria Hospital. The subsequent laparotomy confirmed the opinion that the gauze had gained entrance to the alimentary tract by the ordinary aperture.

It was believed that the motor function of the stomach was interfered with, by adhesions, known to be present a year or more before. Medical treatment and careful dieting after a fair trial had failed to give relief, so exploratory incision was advised and readily assented to by the patient.

Laparotomy on August 28th, 1906, shewed numerous recent and old adhesions at and about the pylorus.

There was also a firm, but not hard, nodule over which the peritoneum glided, situated about 1½ inches from the pyloric ring. The stomach was not apparently enlarged nor displaced. The pyloric ring felt firm and was firmly fixed to the back of the abdominal cavity.

Posterior gastro-jejunostomy by the "no loop" method was performed, and the small nodule removed for microscopical examination. Shortly after the patient returned to the ward, he had a profuse hæmatemesis due in all probability to an uncontrolled vessel in the section made in removing the small tumour. Had a continuous through and through (hæmostatic) suture instead of three interrupted sutures been employed in closing the wound, this accident would in all probability not have occurred. Bleeding was arrested by giving the patient adrenalin chloride in drachm doses in small quantities of very hot water. Convalescence was much delayed owing to the profound anæmia. Within a week after the operation the patient was enjoying a liberal diet and had no further epigastric distress, microscopical examination shewed the tumour to be carcinoma as well as one small but swollen gland removed from the gastro-hepatic omentum.

The patient was informed of the nature of the growth and readily assented to the removal of the diseased part. This, however, was further delayed owing to the development of a parietal abscess in the scar of the first operation wound, which left a small but deep sinus, so that it was not until November the 8th, 1906, that partial gastrectomy was undertaken. The stomach was freed from the gastro-hepatic omentum as far as the gastric artery, which latter was ligated. The section included about one-half of the greater curvature. The section through the duodenum passed one inch wide of the diseased tissue. Both openings were closed by continuous through and through silk sutures and two rows of Lembert suturing and the carcinomatous pylorus was removed.

To prevent any alteration in the anastomosis between the stomach and the jejunum a few "staying" sutures were inserted into the free border of the gastro-hepatic omentum and the sutured end of the stomach, thus preventing any sagging of the latter. Owing to the

presence of the infected sinus a drainage tube was carried to the bottom of the cavity.

The convalescence was very satisfactory, and there was no vomiting. At the present writing the patient has returned to work as foreman in a large factory. He has gained seventeen pounds in weight since the last operation, has had no pain and the bowels are regular. If he eats an unusually "heavy" meal he complains of a sense of fullness, otherwise there is nothing to remind him that he has lost the "grinding" part of his stomach.

KOCH-WEEKS CONJUNCTIVITIS.

BY

HANFORD McKEE, B.A., M.D.

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For the first description of Koch-Weeks' Conjunctivitis, and for the knowledge that this form had a definite etiological cause we are indebted to Weeks. In 1887 he described a form of acute contagious conjunctivitis which appeared epidemically, especially in the Spring and Fall. In the conjunctival secretion he found constantly numerous very fine short bacilli, lying free or in the pus cells. A growth on media of these fine bacilli was very difficult to obtain. At first mixed cultures were obtained. The bacillus xerosis was always present. With this mixed growth Weeks was able to set up a typical conjunctivitis and as the bacillus xerosis caused no re-action in the conjunctival sac he concluded that the small bacillus was the etiological factor. Later Weeks was able to grow the small bacillus in pure culture, and proved it to be the cause of this form of conjunctivitis.

As Koch, working in Egypt had described this same small bacillus, in 1883, the form of conjunctivitis and the bacillus received the name Koch-Weeks.

Since 1887 the Koch-Weeks bacillus has received much attention. Morax made a very complete study of the cultural characteristics of the bacillus and published his work in 1894. Since then numerous places have furnished large epidemics of contagious conjunctivitis due to the Koch-Weeks bacillus, until it is now recognized as one of the commonest and most contagious forms of conjunctivitis.

It is an interesting fact that in different localities, different forms of conjunctivitis seem to predominate. In New York, Koch-Weeks conjunctivitis is very frequently seen. In Nebraska (Gifford) pneumococcus conjunctivitis is prevalent, while in Montreal the Morax-Axenfeld is by far the most common form. A similar interesting variance has been

noted in Europe. While Morax-Axenfeld conjunctivitis is the most common form here, Koch-Weeks and pneumococcus conjunctivitis are very frequently seen. They seem to occur epidemically, while the Morax-Axenfeld form we have with us always.

Koch-Weeks is especially prone to occur in epidemics and is the favorite form for schools and institutions where a large number of persons are brought together. I saw a boy a short time ago, who was home from one of the large boarding schools. "All the boys had sore eyes" and I expect of the same variety as he—the Koch-Weeks.

The clinical picture of Koch-Weeks conjunctivitis is a varied one. After an incubation period of 24 to 48 hours the lids and conjunctiva are red and swollen with a mucus or muco-purulent discharge. The bulbar conjunctiva is especially congested and swollen and may show about the lumbus, tiny phlyctenular-like masses.

The clinical picture may be much more severe, as the following case will show. One evening last summer I was called to see a young woman of 18 years who had been suffering for three to four days with "inflamed eyes." The history was that the children in the family had all had "sore eyes" but had recovered with frequent washings with boracic solution. This case was much more severe than any of the others had been and her condition was as follows: Both eyes were involved, swelling of the lids was marked, from between the lids the discharge of pus seemed to "well up." The bulbar conjunctiva was intensely swollen. The corneæ were intact. From the conjunctival discharge I made a smear and stained it by Gram's method. Examination of the slide showed innumerable short thin bacilli in groups. They were Gram. negative bacilli (the Koch-Weeks) and were readily distinguished from the bacillus of influenza.

The patient was already in a darkened room and in bed. Irrigation of the conjunctival sac with warm boracic solution every half hour application of cold compresses of boracic solution constantly, also to instill drops of a ten per-cent solution of argyrol three times daily made up the treatment.

The patient made rapid progress, the following day the discharge was less, and the swelling of the lids had markedly decreased. Each day saw her condition improved and on the eighth day following she was well.

This case, showing how severe Koch-Weeks conjunctivitis may be, offers many points of interest.

The presence of an acute contagious disease in a family, increasing in virulence as it went from one person to another is not insignificant. The

clinical picture here shows how severe Koch-Weeks conjunctivitis may be. The course and treatment are also of interest.

To the above treatment Koch-Weeks conjunctivitis re-acts well. I have seen this form treated many times with solution of silver nitrate and have seen it run under such treatment a very protracted course Argyrol seems especially efficacious here and in no way causes the pain which even weak solutions of silver nitrate seem to do here. The Koch-Weeks bacilli are not easy to find. Considerable practice is needed to find them, although one's slide may be full of them.

When a smear has been stained by Gram's method, short fine bacilli lying in groups will be found scattered everywhere over the slide. The bacilli are negative to Gram's stain so will take the red colour of the counter stain safranin. This is a satisfactory method for many reasons, but when we have learned to recognize the organism, staining with a weak solution of Carbol Fuchsin for ten minutes is a very excellent method (Axenfeld). This seems to bring out the outline of the bacilli better.

The cultivation of the Koch-Weeks bacillus is not easy. Upon ordinary media it does not grow.

One of the best media is agar mixed with Asditic or Hydrocele fluid or blood agar.

Upon any of this special media the colonies of the Koch-Weeks bacillus appear after 24-48 hours as moist transparent shiny points. From the culture the bacilli look just as they do from the prepared slide. The organisms causing conjunctivitis which is liable to resemble Koch-Weeks conjunctivitis are the pneumococcus, influenza bacillus, and the Morax-Axenfeld diplobacillus. Of these the influenza bacillus is the only one which cannot be readily distinguished from your smear preparation, but the influenza bacillus is neither so long nor so thin as the Koch-Weeks bacillus and differs entirely from it upon media.

The cultural characteristics of the Koch-Weeks bacillus may not be of such great importance to the clinician but to understand that all forms of conjunctivitis vary widely in their clinical picture is of importance. Koch-Weeks conjunctivitis varies from the mildest form, reddening of the bulbar conjunctiva to a picture resembling a gonorrhœal ophthalmia.

But on the other hand if one is able to prepare a slide from the conjunctival discharge and to examine it, and to recognize what one finds there, it matters not to what extremes your clinical pictures go. It matters not how closely pneumococcus, influenza bacillus, and Koch-Weeks conjunctivitis may resemble one another. Find the organism

causing your conjunctivitis and you know what you are dealing with. Having found in the conjunctival discharge the Koch-Weeks bacillus we know we have to deal with a very important form of conjunctivitis. Important because it is very often seen in private practice, very often among children, and because it is one of the most contagious diseases we have to deal with.

It varies widely in its appearance, course and duration.

Koch-Weeks conjunctivitis re-acts well to proper treatment but may run a severe course, complicated with ulceration of the cornea, or a mild protracted course.

CLINICAL NOTES FROM THE ALEXANDRA HOSPITAL.

BY

J. C. Fyshe, M.D. and A. W. Hunter, M.D.

The following cases, occurring in the wards of this hospital during the last nine months, appeared to us to be of sufficient general interest to warrant our venturing to report them.

A Case of "Retained Tube."—H. J., male, aet. 2 years, 7th September, 1906, admitted on the fourth day of laryngeal diphtheria. He was intubed and injected with 15,000 units antitoxine, to which he promptly reacted. The tube was extracted on the morning of 9th October, 1906. Early on the morning of September 12th, he gave undoubted evidence of having scarlatina and was transferred to the scarlatina pavilion. By noon of this day, the laryngeal stenosis which had not been in evidence at all since the extraction of the tube, a period of three days, reappeared and soon became so intense as to necessitate reintubation. The patient was extubed on the 14th, but in about five minutes, after some slight irritation, the inspiratory stridor reappeared accompanied by nasal, cervical and epigastric evidence of stenosis. The picture was one of spastic dyspnœa, rather than that caused by an actual blocking of the passages by some foreign body. The patient became pallid and cyanosed but not in the same way nor to the same extent seen in ordinary membranous laryngitis. Reintroduction of the tube completely relieved the condition. On the 25th and on the 27th, the tube was removed, reintubation being necessary both times in a few moments. Meanwhile the temperature was remaining in the vicinity of 102 in the evening, the child having first a right and then a left sided otitis media, which ran its course without doing any further damage. On October 2nd, the tube was again extracted only to be reinserted, this time, however, after twenty-five minutes. Deliberate irritation of the nose apparent-

ly induced the spasm which made it necessary to reintube. Reintroduction was delayed as long as might be in the hope that the condition would pass away of itself, but to no purpose. A tube a size larger than the one the child had hitherto been wearing was put into the larynx, with, as usual, complete relief of the symptoms of distress. At two in the morning of October 3rd, the child was found cyanotic, anæsthetic, and almost pulseless. Respiration had ceased. No evidence of the tube having been coughed up could be had, nor could it be felt in the larynx. A tracheotomy was done on the bed and after a few moments of artificial respiration, the child began to breathe. When all was going well, a careful search for the tube revealed it under the crib. The tracheotomy tube was removed next day, being replaced by a two year intubation tube which was allowed to remain in situ until 9th October, 1906, when it was extracted, only to be reintroduced at the end of three-quarters of an hour under circumstances in all respects similar to those already enumerated. On the following day, it was decided to abandon intubation. A tracheotomy tube was therefore introduced through the easily separated edges of the wound. It was removed in two days time and the neck bandaged as tightly as possible. The breathing remained undisturbed and the wound healed rapidly with exception of a small sinus, which persisted for three weeks. On January 15th the voice was normal and the general condition of the child was excellent.

Unexplained Complication in Scarlatina.—W. C., male, æt. 7 years, 8th day of a very mild attack of scarlatina immediately following an absolutely uncomplicated case of pharyngeal diphtheria.

Patient became restless about midnight of Nov. 13th and remained so until the next morning, when he suddenly complained of pain in the left shoulder. This pain persisted until mid-day when the patient was systematically examined. At that time there was no objective evidence of any trouble in the left shoulder, no areas of tenderness were present, nor was there any limitation of movement. In the afternoon the pain disappeared. Late on the next day, the patient again made sudden complaint of pain, this time in the hypogastrium and about the genitalia, which he was constantly seizing and irritating. Examination of the urethra and the urine revealed no cause for this pain. Urine was normally passed. During the night of Nov. 14th, patient was restless, at times almost hysterical, crying out loudly and throwing himself and his bedclothes about in an aimless sort of manner.

Next morning, Nov. 15th, the patient was abnormally quiet, lay passively in bed and showed not the slightest inclination to move about nor to speak. At noon he was still in this condition, his head and eyes were

steadily kept to the left, the latter having a vacant, senseless stare. Although there was no actual disturbance of his speech, he would take a great deal of time to answer questions put to him and it was evident that it gave him a good deal of trouble to articulate at all. Examination of the heart showed nothing beyond a slight accentuation of the pulmonic second sound. Lungs and abdomen negative. As the condition of the boy appeared most peculiar, he was watched for some little time: in about half an hour the fingers of the left hand began to twitch, the little and the ring fingers first. This twitching increased rapidly in severity and extent and soon involved the whole arm in a clonic convulsion. The mouth and lids of both eyes were at the same time similarly affected, while the head and eyes were constantly turned to the left, until an increase in the severity of the convulsion caused the head to be rather violently jerked from side to side. It always returned to the left, however. The respirations were irregularly shallow, jerky, and at times interrupted by an exceedingly deep inspiration. Alæ nasi very active. The whole duration of the convulsion was about three minutes. It eventually involved the left leg, in fact all the muscles on the left side of the body, in a clonic convulsion. The right side of the body appeared to be in a state of tetany all the while. After the storm had passed off, there was complete muscular flaccidity. But the interval was not long, after two or three minutes he would pass into another seizure of the same kind, and after that into another. They steadily increased in severity and eventually involved the whole body in extremely severe clonic spasms. During the last two convulsions the whole body was thrown or turned to the left, while the right leg and arm were found to be cataleptic. The reflexes during the intervals were all absent, excepting McCarthy's and to a slight extent the cremasteric reflex. Beyond involuntary passage of urine in the last convulsion, there was no loss of control of the sphincters. Between attacks, there was more or less total analgesia, but on severe manipulation, faint response to pain could be had.

Nine distinct convulsions were noted and they all followed very accurately the above description. They gradually increased in severity, especially so the last one, which, after a duration of twenty minutes was controlled by choroform. There was no return of the attacks after the patient came out of the anæsthetic, which he did quietly and apparently much refreshed.

Dr. Russell who made an examination at 3.30 p.m., found the following condition: left sided hemiplegia, sensation normal excepting for

analgesia of the left hand, forearm and arm up to a line drawn around the shoulder at the tip of the acromion process. Fundi normal, left sided hemianopia. Superficial reflexes, knee jerks and Babinski absent. General muscular weakness.

Patient was given two grains of veronal, icebags were applied to the head and the heart and whiskey given every two hours.

The knee jerks and the Babinski remained absent until Nov. 20th, and for that time there was general muscular weakness and tenderness. The analgesia over the left arm disappeared the next day, and the mental condition then also appeared to be normal: speech was unimpaired and the patient recognized everybody and everything about him.

Further complaints of pain, of sudden onset, in the right thigh and the epigastrium were made on the 17th and 19th but in neither case was it of long duration.

On the 15th and 16th there were passed with small formed stools, small clots of blood and mucus, on the 18th a small quantity of bright red clotted blood, and on the 19th and 20th again fæces stained with blood incorporated in them.

With the first convulsion the temperature went up to 102, the pulse to 140 and 144. The urine was normal throughout.

Patient was discharged on Dec. 24th, well. At that time the heart sounds were very loud, both second sounds at the base being accentuated, there was no increase of dullness and no adventitious sounds could be heard. He has been recently seen and is in perfect health. A tentative diagnosis of multiple emboli was made, based on (1) the sudden and transient pains in the various parts of the body. (2) the sudden onset of the Jacksonian epilepsy, (3) the transient hemiplegia, hemianalgesia and homonymous lateral hemianopsia, all left sided, (4) the bloody stools associated with the abdominal pain. No source of emboli could be found other than the throat, which in this case was so very slightly involved, as to throw much doubt on its etiological significance.

Skin Haemorrhages in Diphtheria.—1. On July 19th, H. L. male aet. 6 years, was admitted on the 4th or 5th day of exceedingly severe pharyngeal diphtheria. The uvula, tonsils, anterior pillars, post. half of the soft palate and the left side of the buccal cavity were covered with thick, dirty gray, very offensive membrane. The patient was extremely toxic, large doses of antitoxine produced not the slightest re-action; death taking place on July 25th. On July 21st, there appeared on the dorsum of the foot, on the legs, and on the ears, small

petechial hæmorrhagic areas, none much larger than a split pea. They did not increase in size, they were hard to obliterate by pressure and they did not fade to any extent at post-mortem. A culture made from one of them with all the usual precautions showed nothing.

2. On July 20th, S. H., male aet. 6 years, was admitted on the 7th or 8th day of the illness: nasal, pharyngeal and laryngeal diphtheria, a typical neglected case. He finally recovered after two unsuccessful intubations, a tracheotomy and the administration of 25,000 units of antitoxine.

In this case also, small cutaneous hæmorrhages were noticed, on the face, the ears and the abdomen, only differing from those in the preceding case in their smaller size and greater number.

With these two exceptions, among over 150 cases, many of which have been quite as serious as the two described, no hæmorrhages of this nature have been observed.

In the B. M. J., 22nd December, 1906, McCrombie reports the occurrence of such hæmorrhages into the skin as being noted in 200 out of 6,755 cases, and that in cases of just the type described above: severe faucial diphtheria in children under the age of twelve. In most of the cases there was a fatal termination.

Relapse in Scarlatina.—W. J., male, aet. 5 years, admitted on the 4th day of a well marked case of scarlet fever. T 1012/5, P124, R 24. The history of the onset was typical, the rash characteristic, as was the tongue, the appearance of the throat, the tonsils and the roof of the mouth. The glandular enlargement was general, in fact there was nothing about the case to make the diagnosis at all doubtful. It ran a perfectly normal course, desquamation being profuse. Ears unaffected.

Twenty-three days after admission, that is on the twenty-seventh day of the illness, the temperature rose to 104° in the course of twenty-four hours, there was headache, nausea and emesis, most marked general depression accompanied by re-enlargement and tenderness of all the superficial glands, soreness of the throat and the appearance of a rash of a pale red hue, confluent, deeper over the folds of the skin. It appeared on the neck and extended on to the face, head and soft palate. This rash faded gradually over about four days and the temperature reached normal again in about a week and a half. There was a second well-marked desquamation, which in places could be seen going on along with the one resulting from the first eruption.

An antitoxine eruption is excluded by the character of the accompanying symptoms, drugs—the boy was not receiving, there was no

arthralgia and all the viscera and their functions appeared to be as near normal as might be.

It would seem that a relapse is the correct interpretation of the second set of symptoms.

Herpes Zoster and Facial Palsy.—J. H. J., male, act 38, was admitted to Ward I, 15th January, 1907, as a case of erysipelas. He was of necessity admitted to the ward before a systematic examination could be made. When this was done, the erythematous rash and the vesicles which were on the left side of the neck and shoulder, were found to terminate abruptly at the midline in front and behind, to cover an area corresponding accurately to the distribution of the 3rd and 4th cervical nerves, in short to present a very beautiful picture of herpes zoster cervico-occipitalis. Three small vesiculo-erythematous areas struggled down over the clavicle as far as the second rib, and a patch capped the prominence of the deltoid. Constitutional disturbance was absent subjectively.

On January 18th a slight left-sided facial paralysis was noted. This rapidly increased in intensity until on Jan. 20th the appearance of the left side of the face was as typical of the affection as any text-book plate. The naso-labial fold was obliterated, there was ptosis of the left lower lid, the whole side of the face was drawn to the right, there was inability to close the left eye or to whistle. Sensation was equal on both sides, but hearing was much less acute on the left than on the right. (Patient states this to be the case when he is in perfect health.) Muscular power and reflexes normal. The paralysis increased in severity until the end of January, and then commenced to recede quickly. It was quite absent on Feb. 10th, and on the 13th, the patient was discharged well, except for sharp shooting pains over left neck and shoulder.

As a child he had measles. Gonorrhœa fifteen years ago. There is no history of lues. He is an old soldier. His occupation is that of shipping clerk in a wholesale liquor establishment.

President Roosevelt has applied the physiological test to the water of Panama: "I drank it, and it was excellent." The *Medical Record* of December, 22nd, thinks that, in view of this evidence, no reference should be made to the Bacillus Coli.

The new nurses home in connexion with the Strathcona Hospital at Edmonton has been erected and is now ready for occupancy.

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ON THE SERVICEABLENESS OF POOR RELATIONS.

The extraordinary outburst of studies in connexion with the subject of immunity that has characterised the last decade has brought to notice the existence or possible development in the blood serum of animals of substances of a very remarkable character—substances strongly specific in their reactions, but at the same time not so strongly specific that they do not exhibit group relationships. Some of these, like the precipitins may well appear to the ordinary practitioner to be outside the sphere of his interests. It may seem to him of little practical bearing that if the goat or the guinea-pig be inoculated with milk or a solution of wheat proteids, after a few days the blood serum of the treated animal, added to the milk or other proteid solution will cause a precipitate in the proteid solution employed for inoculation, that it may cause a slighter precipitate in solutions of closely allied proteids and none whatever in proteids of different constitution. But even here

a use has already been found for this out-of-the-way phenomenon. The blood serum of an animal of the laboratory that has been inoculated with human blood will cause a precipitate in solutions of human blood whereas it will be without effect on solutions containing ox or sheep blood—and the reaction can thus be employed medico-legally to determine the nature of suspicious blood stains—and has been.

The same is true with regard to hæmolysins. If the blood corpuscles of one species be introduced in small amounts into the circulation of a member of another (preferably widely separated species) the blood serum of the second animal gains the power of hæmolysing or "laking" the erythrocytes of the former. Here, as Nuttall and others have pointed out, we find the existence of phenomena which can only be explained on the theory of group relationship. If a rabbit be inoculated with the blood corpuscles of a goose its serum will acquire the power of destroying the red corpuscles of the goose; it will manifest a slight but definite power of "laking" the corpuscles of ducks and other birds, the power being more marked the more nearly are the species allied in general characteristics, but it will have no effect upon the erythrocytes of fishes or quadrupeds. This is true of hæmolysis throughout the animal kingdom and so, to come to the top of the tree we find here a further confirmation of the conclusions reached by the zoologists: we find that the blood serum of an animal immunised against human erythrocytes will actively lake the red corpuscles of man, will show some reaction with the corpuscles of monkeys, the reaction being most marked in the case of the anthropoid apes, such as the ourang and chimpanzee, least marked, if not absent, with small monkeys and lemurs, and wholly lacking with the blood of carnivorous, graminivorous and other quadrupeds. So true in its working is the reaction that we can employ it to determine animal relationship. Man and monkey are thus found as nearly related as are the various members of the salmonidæ.

This is settled. We have here the final link in the chain of proof of the common descent of man and monkey. And bacteriologists have proceeded to utilize our humble relations in other ways, reasoning along similar lines, namely, that related animals are more likely to suffer from a given disease or to be susceptible to the same germ than are animals widely separated in the scale of living beings. If we mistake not, so long ago as 1880 Van Dyke Carter in India, was the first to show that the spirochæte of relapsing fever, while it could not be transmitted to the ordinary animals of the laboratory, would grow in the blood of apes setting up in them a characteristic acute fever. Copeman and others have shown that monkeys are susceptible to small-pox and suffer from

disease just as do human beings, though with a tendency for the disease to become less virulent and die out by successive passage from monkey to monkey—just as the relapsing fever in apes may lack the proper succession of relapses seen in man.

Everyone now-a-days is familiar with the work of Metchnikoff and Roux upon syphilis, a disease which cannot be imparted to the lower warm-blooded animals, and knows their demonstration that the anthropoid, apes exhibit a definite chancre with definite secundines, whereas the lower present but an abortive localised disturbance. Everyone knows also that the spirochæta pallida has been found in these syphilitic lesions of anthropoid apes just as it is found in the primary and secondary sores in man.

If Brazilian papers, recently to hand, are to be trusted—and the account they give is very clear—a McGill graduate, Dr. Wolferstan Thomas, has utilised the chimpanzee to carry us one step further in our knowledge of another disease—one which as regards its causation has so far baffled us, namely Yellow Fever. The late Walter Reed and the American Commission proved the correctness of Finlay's supposition that this disease is conveyed from individual to individual through the agency ofmosquitoes. Their discovery alone has not merely indicated how the disease may be arrested, but had led to its arrest in Havana, and Central America generally. No one, however, of the many workers of the many nationalities, has so far been able to isolate the organism giving rise to the disease, nor until this observation of Thomas' has anyone been able to convey the disease to other animals save man. In the Chimpanzee, according to the reports reaching us, (which are continued and amplified by a note in the British Medical Journal of Jan. 19.) Dr. Thomas has set up through the bites of infected mosquitoes, a disease having all the symptoms of Yellow Fever in man, from which the animal gradually recovered.

There is in this study of tropical diseases much of the fascination, much of the same call for inventiveness, and much if not more of the danger that attends the search for the North Pole. It cannot be said that now the actual attainment of the Pole will teach us more than we already know: with these investigations into the cause of disease and the means of arresting the same the case is very different: what is accomplished is for the betterment of humanity. If therefore each step nearer the North Pole is reached with acclaim, still more hearty should be the felicitations over each step forward in our understanding of such fell diseases as yellow fever. The difficulties and dangers in the research are great: Lazear died through his devotion to the work in Cuba,

Walter Myers in Brazil, Thomas himself was stricken with the disease and recovered, while his companion Breinl was so seriously affected that he had to return to Liverpool for a long convalescence, leaving Thomas to continue the researches single handed for the better part of the last two years. To import chimpanzees to Brazil may appear like carrying coals to Newcastle, but everything points to the fact that the chimpanzee is a nearer relation to man than are the Brazilian monkeys and the end attained would seem to justify the procedure.

THE NEED OF CONTROL.

It is a far cry from the reticent Scot who, at the funeral of one dearest to him, discusses the weather, to the garrulous woman who describes her ovarian derangements to six friends at afternoon tea. These habits, for they are the fixed results of practice, are as widely separated as they appear to be: the former is the outcome of a habit of self-control, and the latter the result of a long-continued indulgence in the lack of it. Perhaps the prevalence of nervous break-down in this continent is due to something closely allied to this lack of self-control. It will scarcely be denied that there is too great lack of control in the upbringing of many children of the present day, for we make a by-word of the training of an American child. If in early years there is little authority exercised by others upon a child, it is not likely that in later years the man will feel it very necessary to exert a similar control over himself. It is not to be asserted that this control is lacking in things moral, or even in things physical, but rather in things mental, in the habit of mind. We are all firmly convinced that mind has a strong influence over matter, and the man who is determined to get well is likely to make a far better fight for his life than is the man who cares not whether he lives or dies. With reference to nervous break-down there are thousands of men in America who at this minute are expectant of it; not infrequently, we get what we expect, and this, like some other things, comes to him who waits patiently enough for it. Worse than the mere waiting for it, is the complacency that many an one shows when it arrives, and the evident pride with which it is at times mentioned after it has departed. It was a sorry thing that an insane parent was thought a source of shame to a son, and it was right that insanity should come to be regarded as disease no more to be reprehended than typhoid fever. Let us not make neurasthenia a disgrace, but let us not consider it a virtue. There is no special reason why one should be readier to discuss in a special way the symptoms of neurasthenia than

those of dysentery, and neurasthenia is a disease that will lessen as less attention is paid to it; no wide-awake physician will really pay it the less heed, and no one need think this to be a step in favour of the rigorous treatment of neurasthenia, but when it is less widely discussed by the laity, it will be treated in a more seemly manner.

Cases of nervous breakdown fall into two classes: first, cases in which the machine, temporarily worn out, will not generate enough energy, and second, cases in which there is enough energy but it is misdirected. We have all seen a strong man spending energy sufficient to run a business, upon the fancy that the skin over his right scapula is deficient in perspiring power, or upon some equally odd idea.

Without enlarging upon the modes of treating this disease, and at the same time, without in any degree minimising the importance of the disease, or its need for treatment, it may be said that the cure lies in discipline, in control. Doubtless it is now too late to effect the cure for this generation, but the next may profit by our efforts. Discipline, to be effective must begin with self-discipline; no man is fit to command until he is fit to obey. Our servants in America are not well disciplined, as a rule, because we have lost our control of them. Our children are apt to be forward, because we have too often failed to exercise a control over them. Our bodies and our minds run riot partly because we have never learnt to control them: trusts and labour unions run riot because we are not strong enough to control them: yellow journalism is a bane because public taste neither controls it nor seems to express any wish to control it. And the story goes on endlessly—everywhere lack of control.

Is there any cure? Not in the aggregate, perhaps, but in the individual a cure is possible. Let me begin with my own tongue and my temper, and when I have so far succeeded, I shall have my own mind so far under control that I shall no longer lose my temper over the fact that my neighbour is neurasthenic; and, best of all, it may be that it will prevent myself from becoming so.

VACCINATION BY OFFICIAL VACCINATORS.

Dr. George Dock in a paper upon vaccination in a recent number of the *American Journal of the Medical Sciences* deals with means that may be taken to make vaccination universal. He points out how badly the United States fares in its small-pox figures by comparison with Germany, and points out that this depends not upon the lack of en-

deavour by statute, for the statutes of most of the States are stringent, but upon the failure of the statute to enforce itself, and the failure of the individual to submit himself to the statute. Some of the statutes are so stringent that they cannot be obeyed. The real remedy lies in the altered view of the individual and in making vaccination popular by doing it so well that it will speak in its own defence. To this end, it should be put in the hands of men whose technique will be perfect and whose observation of the case will not end at the time of vaccination. There is no purpose here, to enter into a discussion of the merits of vaccination, because these have been long proven to the satisfaction of every judicial mind: but it must be admitted that vaccination is often carelessly done, at times even in a dirty manner, and nearly always without a proper repetition of an unsuccessful attempt. These are arguments against the manner in which vaccination is practised, and must be considered. No physician would willingly undergo a vaccination that he knew was going to be performed in a slovenly, septic, careless manner, and it is our duty to see that no patient is subjected to such a vaccination. It is even now within our power to establish at differents hospitals, vaccination clinics, where the number of patients would ensure the perfection of the procedure, and the continuous supply of good vaccine from a national source. This would reduce the annoying "accidents" of vaccination to a minimum, and would compel a more healthy attitude of the public mind to this necessary procedure. So large a result can come about only by the exercise of individual care, and by the lapse of some time, but each physician can do his share by conscientious attention thereto, and this, coupled with some such centralization as we have mentioned, cannot ultimately fail to produce the desired result.

THE CARE OF THE NURSE.

On Tuesday, Feb. 5th, Mr. Goldwin Smith, opened the new home for nurses of the Victoria Hospital for Sick Children, Toronto. This was built and furnished by Mr. J. Ross Robertson at a cost of $130,000, and represents a magnificent addition to that fine hospital, which owes its beauty and efficiency in so great a degree to Mr. Robertson. We congratulate every one concerned, and most of all, the generous donor. We offer no apology for reproducing the sense of his manly and modest words:—

"For years the need of a nurses' home had been unmistakably shown, for these good women had been lodged in the upper rooms of the

hospital and in the tenement houses adjacent. There were no funds, and the people who had been sending money year by year for the maintenance of the hospital could hardly be asked for more money to build such a nurses' home.

"So turning the matter over in my own mind," said Mr. Robertson, "I decided that the best way out of the difficulty was to offer this building as a free gift, as a memorial of her who was with me in the beginning of my hospital work nearly thirty years ago."

"If there was a long-felt want, he continued, it has been a residence of this kind. He had heard it suggested that the housing of nurses had been overdone, and that their surroundings were not in keeping with the simple life. Still the demands made upon these women were inflexible, and nothing could be done to shorten their daily round or lessen their duty. These women came from good homes, and without recompense gave three years of their daily lives to help the hospital. The hospital could do nothing to reduce their labours, but the new building represented an effort to do something to increase their comforts."

The name of Dr. H. D. Kemp, is as closely associated with Ste. Agathe, as that of Dr. Trudeau with Saranac; and the pretty Laurentian village is as well known in connexion with tuberculosis as is the equally pretty village in the Adirondacks. But the presence of persons suffering from phthisis has not been an unmixed blessing to the inhabitants. The authorities of Ste. Agathe have found that a prejudice has been created against their village in the minds of those who were fully sensible to the charm of the place. They are now taking measures to remove this distinction which the village has attained, by the imposition of a prohibitive tax upon sanitariums. Dr. Kemp has forestalled this change by closing his house to consumptives, a thing which in itself is regrettable. The sick he has had with him for eight years, and now he is caring for the well. The sanitarium has been renovated and converted into the Laurentides Inn, for the accommodation of any who desire a rest from the city. here is now near at hand a resort which will be a convenience to those who have hitherto been obliged to go to the United States for a period of recreation in winter or summer. Persons of experience, who have made the experiment, report that the Laurentides Inn leaves nothing to be desired for comfortable living.

The National Association for the Prevention of Consumption has forwarded a large number of plans, photographs and architects' elevations of various sanitariums in Great Britain for the treatment of

tuberculous diseases to the office of the Provincial Board of Health of Ontario. They will form part of the provincial exhibit on the treatment of tubercular diseases, which is to be shown throughout Ontario under the auspices of the Provincial Board. Several models of huts, shacks, cots, and other appliances and equipment for combating the disease have also been received from various associations in the United States. The first place to formally request the loan of the exhibit is Kingston.

In connexion with the death of Dr. John D. Cameron, the following resolution was passed by the Montreal Medico-Chirurgical Society:

"That this society place on record its expression of deep regret at the untimely death of a late member, Dr. John D. Cameron, lecturer of gynæcology in McGill University and assistant gynæcologist to the Montreal General Hospital. Dr. Cameron was a devoted, practical and incisive teacher, a warm friend to his colleagues, and in a rare degree beloved by his patients, for whose interests he considered no sacrifice of personal comfort or convenience too great in ministering to the wants of even the poorest. Cut off in the fulness of mental and apparent physical power, Dr. Cameron's death comes as a near personal loss to his colleagues, many friends in the profession, and numerous patients.

Recognizing the advantages of a broader general education and the growing necessity of the prospective student having in addition special preparation for the study of medicine, the Board of Trustees of the University of Pennsylvania has recently decided to raise the requirements for admission to its medical school. These requirements include two years of general college training and, in addition, a certain knowledge of biology, chemistry and physics. According to the plan which has been adopted, the standard will be raised gradually, beginning with the academic year 1908-1909 and reaching the maximum in 1910-1911.

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we record with regret the death of Dr. Samuel Fairweather Wilson, of this city, which occurred on January 29th, after an illness of some months. Dr. Wilson was extremely well-known in Montreal, especially in Point St. Charles where he for many years enjoyed a large practice, living latterly at 875 Wellington street. The deceased physician was a native of Springfield, N.B., and practised in Sussex and in St. John, N.B., subsequently moving to Montreal. Of late years he had devoted his attention to electrical methods of treatment of disease. Our colleague, who died in his 51st year, is survived by a widow and daughter.

Obituary.

SIR WILLIAM HINGSTON.

Sir William Hingston, M.D., died in Montreal on Tuesday, 19th February, 1907, at half-past nine in the morning, in the 79th year of his age. The immediate cause of death was a gastero-enteritis induced probably by ptomaine poisoning. The final illness lasted only seventeen hours. A fine personality passed away from amongst men when he died, and his place must always remain unfilled. We shall not see again a man with a bearing so distinguished, a behaviour so calculated to win the heart of his fellows, a manner at once so courtly and so kind.

William Hales Hingston was the first son of Samuel James Hingston and his second wife, Eleanor McGrath, of Montreal. He was born June 29th, 1829, at Hinchbrook, near Huntingdon, in the Province of Quebec. His father was Lieutenant-Colonel of Militia, formerly of the 100th Regiment, or "The Dublins." He was a native of Ireland, being allied to such families as the Cotters of Cork, the Latouches of Dublin, and the Hales. After the reduction of the forces at the conclusion of the war against the United States, Colonel Hingston settled upon a grant of land at Hinchbrook, on the banks of the Chateauguay River.

This Col. Hingston feared God and honoured the King, but he was not noted for success in the management of his property. He wore his uniform habitually, and, during the time which he could spare from the hunting-field, conducted his farming operations, as he would a piece of military tactics. Consequently, when he died, in 1831, there were debts to be paid, and he left instructions that the property was to be sold for that purpose. Even if the property had been sold, the debts would not have been fully paid, and it occupied the widow fifteen years to complete the task.

That was the hard school in which the boy, William Hingston, was educated by his heroic mother. By the strictest economy she managed to educate her children at the little grammar school, conducted by John Rose, afterwards Sir John Rose.

SIR WILLIAM HINGSTON, M.D.

To his mother and these first years on the farm he owed much. The hard, out-door work, his long walks to school brought him health and physical strength. The example and precepts of his mother in whom strength of will, self-sacrifice, economy, and firmness were combined with deep Christian faith and tender motherly love, moulded the boy in a form preserved through manhood to his death.

At the age of thirteen he was sent to Montreal College of St. Sulpice. Lack of funds prevented him from receiving a full course of study, and after a year and a half's stay in that institution he was obliged to leave. The masters noticed that this pupil was unusually bright, and offered him free education; but his mother did not consider herself at liberty to accept this generous offer. At the end of his first year he had carried off a prize in every subject. During his short stay he had acquired a love of classical literature so great that for some years after his departure he spent his little pocket money in procuring private lessons in Classics from one of his old tutors. If, in after years he became a scholarly, educated man with a wide knowledge of the classics of England, Germany and France, it was due to a natural inclination for literature awakened during his short stay at college and to his own energy.

Obliged to earn his living, he entered the employ of R. W. Rexford, druggist, as apprentice and clerk. At first he employed his spare time in serious reading, but later decided to study medicine, and in 1847 entered McGill University. Rexford, realizing that he would lose a promising and diligent clerk by whom he wished later to be succeeded, put every obstacle in the way of the young student, and it was only by feigning sleep that young Hingston could procure a few short hours for study.

In 1851 he graduated from McGill, and at once crossed the Atlantic in a small sailing ship to Edinburgh, then the centre of surgery in the English-speaking world. There, he was a favourite of both Simpson and Syme; of these two men, and of Dr. G. W. Campbell, his professor of surgery at McGill, he always spoke with affection and esteem. Simpson frequently

took his pupil with him, when calling upon his private patients, a mark of confidence rarely conferred.

From Edinburgh he went to London, and attended St. Bartholomew's Hospital. For economy's sake he lodged at West Brompton, and every morning walked five miles to the hospital, returning on foot in the evening. Later he spent some months in Dublin, where he worked under Stokes, and the younger men, Corrigan and Graves. During his stay in London, Edinburgh and Dublin, he had acquired a fair knowledge of German, and then proceeded to the continent where he spent some time in Paris, Berlin, Heidelberg, and Vienna, attending the clinics of the famous men of the time. All through his stay in Europe he was obliged to practice the strictest possible economy, depriving himself of all but bare necessities, his diet at times consisting of bread and water only. His two years stay in Europe, including the expense of his degree, several certificates, private lessons in various subjects, cost him £96. This was a rare feat in economy, but he had laid aside that sum from his earnings as a clerk, and had no one to whom he could turn for assistance. He knew that when that was expended he would be obliged to return to Montreal, and on strict self-denial depended the fulfilment of his ambition. Before leaving Europe he returned for a short time to Edinburgh. Simpson strongly urged him to remain as his personal assistant, but Dr. Hingston yielded to the desire of his mother, and returned to Montreal.

He opened an office in Montreal on McGill Street, and by successive stages migrated to Bonaventure Street, to Beaver Hall Hill, to Union Avenue, and finally to Sherbrooke Street. He and the late Dr. Howard were always neighbours, in these various movings.

The second year of his practice, was the year of a cholera epidemic. The ravages of this disease were fairly well confined to Griffintown and Point St. Charles, then largely peopled by penniless emigrants, most of whom were from Ireland. These poor people found that, of the physicians of Montreal, there was only one who was willing to sacrifice his days and nights for charity's sake, who was willing to come

any hour, as often as he was called, and even to sleep on the floor beside his patient, and all this without any hope of remuneration. Most of his visiting was done on horseback, and on many occasions from sheer exhaustion he was known to sleep in the saddle. Very soon his was the only medical name known in those quarters. In later years the fruit of his labour appeared. When these people became thriving, Dr. Hingston had almost an exclusive practice amongst them.

In 1860 Dr. Hingston was nominated to the staff of the Hotel Dieu, which had first opened its door in its present situation. The first patient under his care was a woman suffering from a diseased elbow, and Dr. Hingston successfully performed resection of that joint. This operative measure was a recent one in Europe and one never before practised in Canada. During the following years Dr. Hingston's practice grew steadily larger. Recently, he remarked that, for the first thirty-five years of his practice, his professional income showed a yearly increase.

In 1865 he was with a few others instrumental in reviving the Montreal Medico-Chirurgical Society. A circular signed by Dr. R. P. Howard, Dr. Hector Peltier, and Dr. Hingston was sent to a number of medical men of Montreal calling a meeting. The object of the meeting was the revival of the Society, which had been dead since 1851. The Society was again brought to life, Dr. G. W. Campbell being President, Dr. Hingston Vice-President. At the annual meeting the following year, Dr. Hingston was elected President, an honour repeated in 1873, and again in 1880. For many years Dr. Hingston was one of the strongest supporters of the Society in reading papers, presenting specimens and cases, and in discussion. His name is met with on nearly every page of the minute book of that period. It was about that time that Dr. Hingston with a few others founded the Women's Hospital and he remained on the active staff till the organization of the Western Hospital, of which he was a charter member. The Women's Hospital joined the Western, and to the latter institution Dr. Hingston always remained consulting surgeon and chairman of the Medical Board.

In 1870 the question of founding a Medical school of Bishop's College was raised, and next year a charter was granted, Dr. Hingston being named professor of clinical surgery and head of the Faculty. In a few weeks he found it necessary to give up either the new college or his position at the Hotel Dieu, so he resigned from the Faculty.

In 1882 he was named professor of clinical surgery at the Montreal School of Medicine, Victoria University. He had already been giving clinical lessons without an appointment since 1860. Five years later he became Dean and occupied the chair till the union of Victoria and Laval in 1891. From that time till his death he occupied the chair of clinical surgery in Laval University.

In 1885 the great small-pox epidemic raged and Dr. Hingston was chosen Chairman of the Board of Health. A pamphlet on vaccination as a preventive of this disease was printed and distributed by the Civic authorities and in every way Dr. Hingston worked to make vaccination compulsory. Much opposition was met with and on many occasions the great determination and firmness of the chairman had to be shown. At this time he published a book which was very favourably received, "The Climate of Canada and its relation to Life and Health."

In 1892 the British Medical Association held its annual meeting at Nottingham, and Dr. Hingston was invited to deliver the address on Surgery. The address was well received.

Sir William Hingston was a great surgeon when greatness in surgery consisted in courage, decision, and rapidity in operation. Fifty years ago he was doing capital operations as well as they could be done in those days. Surgery then was a fearsome thing, and he never got over this impression that an operation was a serious matter. No surgeon who was trained in that hard school has ever been able to master the meticulous routine of modern asepsis. Sir William had much respect for the thing which had been, and was not sufficiently alive to the importance of the new. He never mastered entirely the technique of asepsis; indeed, he was never fully convinced of its importance.

In 1872, Dr. Hingston removed in one operation the tongue and lower jaw. This is the first case recorded of that operative

measure. In February, 1873, the patient was shown at the Montreal Medico-Chirurgical Society, and the case is recorded in the minutes. In the early eighties, ovariotomy for cystic and other tumours was comparatively a new operation. His success at first was small, but two or three years after his first operation he had a series—at that time remarkable—of thirteen cases operated on without a death.

It would require a formal biography to describe all the academical honours which came to him, and to mention the societies which he addressed. He had honorary degrees from two universities and in 1900 he received the honorary fellowship of the Royal College of Surgeons of England.

Dr. Hingston began his public career when he came before the people of Montreal as a candidate for the Mayoralty in 1875. He received about ten votes to his opponent's one, and, as he stated at the time, "without having spent one moment of time or one shilling of money to obtain a position which no one should seek, but which, coming as it did, no one was at liberty to decline." He was re-elected by acclamation, but declined a third term. The period of his Chief Magistracy was one of unusual importance, especially at the time of the Guibord affair. For the wise and moderate manner in which he discharged his duties Mayor Hingston received the thanks of the Governor-General, Lord Dufferin.

On May 24th, 1895, he was created Knight Bachelor and the same year he ran as Conservative candidate in Montreal Centre for the House of Commons, being defeated by Mr. James McShane. The following year he was appointed to the Senate.

Dr. Hingston had taken an active interest in financial matters. At one time he was president of the City Passenger Railway Company which has since become the Montreal Street Railway System. He was president of the Montreal City and District Savings Bank, and a director of the Montreal Trust & Deposit Company.

Sir William worked till the end, and saw his last patients in his bed-room even when his illness was sore upon him. Of late years his strength was somewhat reduced, especially since a severe attack of influenza in 1900. But his constitution was sound, and it was preserved by exercise and abstemiousness.

When in his prime, long walks of thirty or forty miles were not rare. On one occasion he covered fifty-five miles in one day. At the age of sixty-five he used to row alone to his country house fifteen miles down the river. A lover of horses he used to be a straight rider to hounds—it was his favourite sport and only recently did he give up the saddle.

His personal habits were simple. Abstemious and self-denying at table, his meals were usually remarkably small. Always sociable and a member of many clubs he had too high an idea of the importance of time to waste it in amusement.

Tall and erect, with well cut features, bearing an expression of strength and kindness, Sir William always attracted attention. His manners were courtly and refined, belonging rather to the old world and an older generation. Nor did this manner ever change, it was part of the man; it was an exterior sign of what he really was. He was as courteous to the young graduate as to those of his own age, to the penniless sufferer as to the highest in the land. He was a bright and witty conversationalist, always good company, a fair public and rare after-dinner speaker. In the Senate he rarely spoke, but when he did was well listened to, as it was felt there was much in what he said. Politics did not interest him; he entered into discussion only when principles were at stake.

His career was the embodiment of all which is best in the profession of medicine. By a long and well conducted life he won the respect of his colleagues, the confidence and affection of his patients, and the good will and consideration of his fellow-citizens.

Nor was this appreciation limited to the immediate community in which he lived. He moved with freedom in the larger world, and always and everywhere impressed the by-standers with a sense of ease, dignity, and kindliness. No one has heard him utter a harsh word against a colleague, however great, however incompetent and young.

His fine perception of niceness in professional conduct, and his just appreciation of the larger propriety in life made him the confidant of the old and the mentor of the young. His judgments upon intricate professional situations were especially sure, because they were based upon feeling for rightness,

and were wholly disinterested. Medical life in Montreal will be the poorer for his loss.

Of all which is unworthy of the high tradition of medicine he had a splendid scorn and a capacity for bitter speech in its denunciation. But his harshness left no sore, since it was directed against the thing and not against the individual.

He attained his high position in medicine and surgery not so much by what he did as by what he was. It is an infallible sign that a physician has lived his life well if he has won the hearts of his patients and of his colleagues. Sir William did both.

One who knew him intimately has favoured us with the following note:—"To those who knew him well it was apparent that all his actions were regulated by some governing force, some strong unbending principle. This was his high conception of duty, his trust in God, his faith in his religion. His sense of duty, guided by a clear sense of right and wrong, had for foundation his strong faith in his Master. He tried to do his duty for duty's sake, and because he felt that was what his Master required of him. The feeling never left him that he and all others were points moving towards eternity and that the short time given to him here should be well spent. This love of duty for higher motive pervaded everything in his life. It was that which made him so trusted by his patients.

"To his patients he applied the same principles and rarely missed a chance of offering them counsel. He considered that his profession required it of him. In religion he was a staunch, uncompromising, but never aggressive Catholic; many of his intimate friends were ministers of other creeds. This deep sense of religion and duty, which to him were the same, is the key to his life. By it he accomplished what he did, occupied a position it will be hard to fill, and when he died called forth so large a tribute of sorrow and praise."

It would require much space to record the expressions of regret which have been conveyed to the family, and only a few of the earlier ones are selected. The authorities of the Hotel Dieu wrote:—"The members of the medical staff of the Hotel Dieu have learned with deep regret of the sudden death of their venerable president. At a special meeting convened for the purpose they desire to convey to the family the expression of

their profound sympathy in the loss they have sustained. They wish to manifest their appreciation of his great devotion to duty as dean of the hospital, and they desire to place on record their great admiration of his many personal qualities. They join with the reverend ladies of the Hotel Dieu, together with the patients, in mourning his death."

At a meeting of the Montreal School of Medicine and Surgery, medical faculty of Laval University the following resolutions were adopted:—"That the Montreal School of Medicine and Surgery have learned with the most profound sorrow of the death of their colleague, Sir William Hingston: that the members of the said faculty deplore all the more their loss in view of the long and honourable career of Sir William, during which he attended with equal devotion the poor and the rich, and occupied at the same time the most important and responsible positions among his fellow-citizens, while his high medical attainments shed a lustre upon Canadian medicine which extended far beyond the boundaries of his native land."

At a meeting of the directors of the City and District Savings Bank the following was passed and inscribed in the minutes:—

"Resolved, that this board record its sense of the loss it has sustained by the death of Sir William Hingston, a director of this bank since 1875, and president since 1895, whose great moral, professional and business reputation has largely contributed to maintain and increase the public confidence which this institution has hitherto enjoyed."

In the Senate Mr. Speaker, Senator Dandurand, Hon. R. W. Scott, Senators Lougheed, Cloran, Sullivan, and Ferguson deplored the event in fitting words.

Sir William is survived by Lady Hingston, Margaret Josephine, daughter of the late Hon. D. A. Macdonald, Lieut.-Governor of Ontario, four sons and a daughter. The eldest son is studying for the priesthood in the Society of Jesus; the second son is Dr. Donald Hingston, of the Hotel Dieu staff; the third, Mr. Basil Hingston, and the youngest son a student at Laval University. It is understood that a considerable fortune has been left behind.

Reviews and Notices of Books.

THE PRACTICE OF OBSTETRICS, IN ORIGINAL CONTRIBUTIONS by American authors. Edited by REUBEN PETERSON, A.B., M.D. Professor of Obstetrics and Gynecology in the University of Michigan, Ann Arbor, Mich., Obstetrician and Gynecologist-in-chief to the University of Michigan Hospital. Illustrated with 523 engravings and 30 full page plates. Lea Brothers & Co. Philadelphia and New York, 1907.

This, the most recent work on Obstetrics is issued by Lea Brothers & Co., as one of the series "The Practitioner's Library." The contributors are Drs. Bacon, Crockett, Dorland, Ehrenfest, Huber, Lewis, Manton, Moran, Schenck, and Warthin. The work is divided into nine sections; the physiology and development of the ovum, the physiology of pregnancy, the physiology of labour, the physiology of the puerperium, the pathology of pregnancy, the pathology of labour, the pathology of the puerperium, obstetric operations, and the new-born infant. As is usually the case in composite works of this kind by different authors, the various sections are of unequal merit and sometimes do not seem to run very smoothly into one another. In subsequent editions, this will probably become less and less noticeable. The chapter on obstetric operations is in places disappointing. For example, the operation of hebotomy (pubiotomy) which is attracting so much attention in Europe and is being done more and more frequently also on this side of the Atlantic, is dismissed in thirty-five lines, twelve being devoted to a description of the technique. The writer makes the extraordinary statement that up to the present time, *nine* operations have been reported with perfect results and attended by smooth convalescence. If he would look up recent continental literature, he would find hundreds of cases reported, in some of them the operation having been repeated in subsequent pregnancies. Perhaps the explanation lies in the fact that considerable time sometimes elapses between the writing of the article and the publication of the book. It is a blemish, however, for which the author should not be held responsible. Especial attention seems to have been given to the illustrations, many of them being from photographs taken in the University of Michigan Maternity. Some of these are good, but many others are confused and unsatisfactory. Photography of operative work is seldom a brilliant success. In the cuts of the instruments, too, occasionally old models have been figured with the obsolete wooden handles, as, for

instance, in figure 450, the Tarnier axis-traction forceps. These minor defects will, no doubt, be remedied in subsequent editions, and this system will take its place with the older systems and text-books which have undergone much revision and alteration as they have passed from edition to edition.

Conservative Gynaecology and Electro-Therapeutics. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Fellow and Ex-President of the American Electro-Therapeutic Association. Fifth Revised Edition. Illustrated with 12 original, full page, lithographic Plates and 15 Photographs taken from nature, and 157 other engravings. Philadelphia. F. A. Davis Company, publishers, 1906.

The fourth edition appeared only a year ago, so that it would seem that, in spite of this being a surgical age, there is a considerable demand for a work on electro-therapeutics, and especially on their application to the treatment of diseases of women. Dr. Massey has been known for the last twenty years as an enthusiastic advocate of this method of treatment; otherwise one would be surprised to find so much information on this department of a specialty. As he has the faculty of describing and explaining electrical apparatus with unusual clearness, his book is worth while studying for this reason alone. But besides that, it is a serviceable work on medical gynæcology, having chapters on the causes of women's diseases and on their treatment by all other non-surgical means. The most interesting chapters are those on amenorrhœa, due to undeveloped uterus, and menorrhagia, from subinvolution, while the chapters on fibroid tumours of which he has treated to a conclusion one hundred and ten cases is convincing. One of the greatest objections to the electrical treatment of fibroids and other uterine diseases is the much greater time it requires compared with the surgical methods. Dr. Massey overcomes this difficulty by having several patients in different rooms getting ready, and by having assistants to keep the apparatus in order. Those of us who have given this treatment a fair trial found that we could not overcome the great objection of time consumed as well as Dr. Massey has done; but that is to be expected as he limits his practice entirely to office work, and it is well known that electrical apparatus is most efficient when in constant use. His article on neurasthenia is valuable, while the chapters on static electricity and X-Rays leave little to be desired. The only criticism that we feel like making is that, like all enthusiasts, he has gone a little too far away from surgery in

the direction he advocates. Cancer of the breast, for instance, if removed early enough, does not recur, so that his method of sloughing it out cannot be commended, if for no other reason than that it loses valuable time.

HIGH FREQUENCY CURRENTS; THEIR PRODUCTION, PHYSICAL PROPERTIES, EFFECTS AND THERAPEUTIC USES. By H. EVELYN COOK, M.D., B.S., London, F.R.C.S., England, of the Middle Temple Barrister at Law. Assistant in the Ophthalmic Department, West London Hospital, member of the Röntgen Society, etc. London, Baillière, Tindall & Cox, Sept. 1906. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $2.25. 206 pages, 44 illustrations.

The book is divided into three parts. Part one treats of the history of high frequency currents, their production and physical properties and their methods of application. Part two is devoted to the physiological effects of high frequency currents. Part three to the therapeutical uses of high frequency currents, their production and physical properties and as electric currents of a very high potential having oscillations of enormous frequency. The high voltage reaches to the enormous number of 1 to 3 millions and the frequency of oscillation to three millions or more per second.

We are indebted to Professor Joseph Henry, Lord Kelvin, Clark Maxwell, Hertz, Tesla, Thomson and Darsonval for our knowledge of these high frequency currents and the historical account given is clear and simple. Passing from the history to the methods of production we have a clear account thereof with diagrams clear in character, and clearly printed, of the different apparatus for producing these currents We commend this book to anyone who wishes to get a clear account of what high frequency currents are, how produced, their physiological action and therapeutic value, in certain diseased conditions of the body, both medical and surgical.

There are reports of cases given including sprains, dislocations after reduction, delayed osseous union, and in medicine, cases of tubercular disease of lung, scrofulous ulcerations, tubercular knee and instep, cases of sciatica, rheumatic pains, collitis, both ordinary and ulcerative, and of defective metabolic change are given with the results. It is a book of practical work and contains hints for practice in the treatment of diseases in which these currents may be expected or have been proven to be efficacious. It is printed well on good paper and with good illustrations throughout.

G. P. G.

A Text-Book of Pathology. By Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Fifth Revised Edition. Octavo of 977 pages, with 399 text-illustrations, many in colours, and 7 full-page coloured plates. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $5.00 net; half morocco, $6.00 net. Canadian agents, J. A. Carveth & Co., Toronto.

Stengel's Pathology is at the present moment, perhaps, more widely used by students than any other in this continent; this is chiefly by reason of the brief, direct descriptions which can be readily found, thanks to a good index. The special pathology sections are thus commendable: in general pathology Professor Stengel's book lies open to the charge that its lessons are not sufficiently general, that wide principles are not sufficiently insisted upon; in this regard the present edition does not differ greatly from previous editions, although immunity has of necessity been somewhat enlarged, as has also the part dealing with animal parasites. It is the writer's conviction that the part of Professor Stengel's book which is called Special Pathology should begin at page 134 instead of 366: the intervening two hundred pages are not general pathology at all, and ought not to be called so: the reviewer suggests in all seriousness that this should be done, or as an alternative that the granulomata, new growths and the general effects of parasites should be treated in a general way and the result added to the first 134 pages; the former change would free the author from the appearance of treating general questions when he is not doing so, and would tend to class the book where it rightly belongs—namely, as a text-book of special pathology.

J. McC.

A Manual of Pathology. By Guthrie McConnell, M.D., Pathologist to the St. Louis Skin and Cancer Hospital and to St. Luke's Hospital, St. Louis, Missouri. 12mo of 523 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1906. Flexible leather, $2.50 net. Canadian agents, J. A. Carveth & Co., Toronto.

There is at the present time quite a sufficient number of compilations and text-books of special pathology, and McConnell's is another book which comes without making any more serious claim than to be handbook which will enable a student to rapidly acquire the main facts of the subject. General pathology, dealt with in the first part of the book, is extremely condensed, so much so, in fact, that many chapters

are but little more than a series of definitions, and we venture to think that the process of condensation has been carried too far and that the student will not see the principles connecting and underlying these statements. Tumours and specific micro-organisms are well illustrated. Special pathology, naturally lends itself to condensation better than general pathology, but every page shows evidences of the necessity to compress that has laid upon the author. There are many useful formulæ for laboratory work, but it is scarcely right to lay as much stress upon maceration as upon the examination of frozen sections, considering the wide usefulness and application of the latter method. Most of what has been here stated about the book has struck the author, we doubt not, first of all, and we doubt if the faults lie with him so much as with the necessity that has made him attempt to compress the subject into five hundred small pages.

Atlas and Text-Book of Human Anatomy. Volume II. By Prof. J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Michigan. Quarto volume of 194 pages, 214 illustrations, mostly all in colours. Philadelphia and London. W. B. Saunders Company, 1906. Cloth, $6.00 net; Half Morocco, $7.00 net. Canadian agents, J. A. Carveth & Co.

Quite recently we reviewed the first volume of this work and spoke in high terms of the very beautiful illustrations of the altas, which were mostly in colours. Volume II. fully keeps up, nay surpasses, the excellence of Volume I, and no expense has been spared in issuing a work whose illustrations have no superior. This volume treats of the viscera and heart and also the organs of generation. There are many beautiful coloured cross and vertical sections of the body, which are clear, with the names of organs, vessels and muscles, plainly printed on them. There is a very lucid account given of the development of the peritoneum, which is well illustrated. A comprehensive index is added to this volume as in the previous one. We can heartily recommend this volume to those who wish a good and coloured atlas of the viscera, with explanatory text.

Plaster of Paris and How to Use It. By Martin W. Ware, M.D., Mount Sinai Hospital; 12mo; 72 illustrations, 100 pages. Surgery Pub. Co., 92 William St., N.Y. City. Cloth $1.00.

This is a useful book on account of the general demand for the information and instruction upon the subject which it so explicitly conveys. The whole subject, from the making of the bandage to its use

as a support in every form of splint, corset or dressing, is graphically described and illustrated. The use of plaster of Paris in dental surgery is also covered.

A Text-Book upon the Pathogenic Bacteria. By Joseph McFarland, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia. New (5th) edition. Octavo volume of 647 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $3.50 net. Canadian Agents, J. A. Carveth & Co., Toronto.

We must commend Professor McFarland for the spirit in which hs undertakes the re-writing of his book in this, the fifth edition. He has made "careful analyses of the reviews of past editions, in the hope that it might be possible to improve the work according to the suggestions offered." It is to be hoped that reviewers write in no less conscientious a spirit. The fifth edition is a few pages longer than its predecessor, but shews considerable re-arrangement, and the insertion of much material in place of what has been cut out. The fifty pages devoted to immunity are quite new, and present the various problems in a straightforward, definite way: this subject has naturally expanded greatly in the last four years. As before, the pathogenic bacteria are studied separately, and much useful information is incidentally added to the technical description of each form. Non-pathogenic bacteria are not dealt with at all. Professor McFarland's fifth edition has the virtues of its forerunners and some added ones.

Practical Dietetics; With reference to Diet in Disease. By Alida Frances Pattee. Fourth Edition. 12mo, cloth. 300 pages. Price, $1.00 net. A. E. Pattee, Publisher, 52 West 39th Street, New York.

When the first edition of this book appeared we expressed a good opinion of it. That opinion has been confirmed by the success which the book has met with. It has been adopted generally in schools, colleges and the army.

Diseases of Children. By George M. Tuttle, M.D. Lea's Series of Pocket Text-Books. Edited by Bern B. Gallaudet, M.D. Second Edition Revised and Enlarged. Publishers, Lea Brothers & Co. Philadelphia and New York.

That in less than six years this little work has gone through two printings, and has now been issued as a new edition, revised and

brought up to date, is ample evidence of its success and popularity. The author claims to have dealt more largely with the physiology of infancy and with infant feeding than with the pathology of the subject. The work is convenient in size, well arranged typographically, and very practical in character. It is a safe and very concise introduction to the subject of Pediatrics, and will probably be more useful to medical students than some of the more elaborate treatises upon this subject.

The Uses of X-Rays in General Practice. By R. Higham Cooper, L.S.A., Medical Officer in charge of the Radiographic Department at University College Hospital, etc. Baillière, Tindall & Co., London. Canadian Agents, J. A. Carveth & Co., Toronto. Sept. 1906, 98 pages, 15 illustrations. Price 75 cents.

The intention of this little book is not to be a handbook to the science of radiotherapy but to give the general practitioner some idea of the help he may obtain in practice from X-Rays and to indicate what cases are suitable for examination and treatment. The physics of the subject are only briefly outlined, but enough time is devoted to this part of the book to enable the reader to understand what is meant. The chapters on radiography are clear and explanatory. The paper and typography are good and clear, as are the diagrams and copies of radiographs. Great care has been bestowed on the copies of skiagraphs which are well selected.

Syllabus of Lectures on Human Embryology. By Walter Porter Manton, M.D., Professor of Clinical Gynæcology, Detroit College of Medicine. Third edition. Revised and Enlarged. Illustrated 12mo, 136 pages. Price, $1.25, net. F. A. Davis Company, 1914-16 Cherry Street, Philadelphia, Pa.

While this work is specially designed for students in their first and second years it is likewise a desirable manual for review and reference for the general practitioner. It is not intended to take the place of the exhaustive text-books on Embryology, but is primarily for use in the classroom supplementary to the lecture and for laboratory guidance.

Surgical Suggestions. By Walter M. Brickner, M.D., and Eli Moschcowitz, M.D. New York Surgery Publishing Co. 1906.

The Surgical Suggestions published during the past year in the successive issues of the *American Journal of Surgery* have been extensively quoted in medical journals throughout the United States and Canada. This has suggested to the editors their arrangement in logical order, and in a concise form. The present volume is the result, and it is full of wisdom.

A Text-Book of Obstetrics. By Barton Cooke Hirsh, M.D. Professor of Obstetrics in the University of Pennsylvania, Gynecologist to the Howard, the Orthopædic, and the Philadelphia Hospitals, etc. Fifth edition, revised and enlarged, with 767 illustrations, 40 of them in colors. Philadelphia and London: W. B. Saunders & Co., 1906.

The author has carefully revised his book, has expanded some parts and rewritten others, so that it is now one of the best books for the student and for easy reference by the practitioner. When further information upon any subject is desired, the bibliography is sufficiently complete to point the way to the best monographs. The subjects of puerperal infection and gestational toxæmia have been revised, and brought up to date, and now form a valuable part of the work. The illustrations are numerous, and for the most part excellent.

The Harvey Lectures, Delivered Under the Auspices of the Harvey Society, of New York, 1905-06. J. B. Lippincott Company, 1906.

The Harvey Society of New York was organized in 1905 through the efforts of Dr. Graham Lusk. The lectures deal with the purely experimental side of medicine, and are a broad presentation of subjects of general interest from the laboratory point of view. The present volume contains thirteen lectures of considerable length given by men who devote themselves to experimental medicine, namely, Professors Hans Meyer, Carl Von Noorden, F. G. Novy, P. A. Levene, W. H. Parke, Lewellys F. Barker, F. S. Lee, Lafayette B. Mendel, T. H. Morgan, Charles S. Minot, J. Clarence Webster, Theobald Smith, and W. H. Howell. The subjects are important and the treatment is masterly.

The International Scientific Series. Edited by F. Legge. The Mind and Brain. By Alfred Binet, Director of the Laboratory of Psychology of La Sorbonne. Being the translation of "L'Ame et Le Corps." London. Kegan, Paul Trench, Trübner & Co., Ltd. Price 5s.

This book is an effort to establish a distinction between mind and matter. The method is purely philosophical, and does not readily lend itself to review. The book is a fine essay in the field where psychology and physiology adjoin and will be eagerly read by those who are interested in these matters. The argument is clear, and can be followed by a reader of average intelligence and industry. Upon the finality of the conclusion we have a proper diffidence in expressing an opinion.

ATLAS AND EPITOME OF DENTISTRY. By PROF. GUSTAV PREISWERK, of Basil. Edited by GEORGE W. WARREN, M.D., Professor of Operative Dentistry at the Pennsylvania College of Dental Surgery. With 44 lithographic plates, 152 text-illustrations, and 350 pages of text. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $3.50 net. Canadian Agents, J. A. Carveth & Co.

Dentists, we should say, ought to give a warm welcome to this book. It belongs to the series of Saunders Medical Hand-Atlases which are translations of the Lehman Medicinische Handatlaten, known throughout the world for their accuracy and pictorial beauty. The drawings in this volume appear to us excellent, and tempt one to learn something of the principles and practice of dentistry in which the text abounds.

THE IMMEDIATE CARE OF THE INJURED. By ALBERT S. S. MORROW, M.D. Octavo 340 pages, 238 illustrations. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $2.50 net. Canadian agents, J. A. Carveth & Co., Limited.

This book gives as well as any book can the procedure which should be followed in the immediate treatment of injuries and the care of the wounded. Combined with proper instruction it will be of great value to persons, professional, as well as non-professional, who may be called upon to render "first aid." The illustrations alone are highly instructive.

THE PRACTICAL MEDICINE SERIES. By GUSTAVUS P. HEAD. General Editor Vol. IX. Anatomy, Physiology, Pathology. Edited by W. A. EVANS, ADOLPH GEHRMANN and WILLIAM HEALY. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases, Edited by W. L. BAUM, HUGH T. PATRICK and WILLIAM HEALY.

These volumes complete the series for the year 1906. We have frequently spoken of this series with respect and praise. The ten volumes contain a valuable record of medicine in an interesting form.

SELF-PROPELLED VEHICLES. A practical treatise on all forms of automobiles, by JAMES E. HOMANS, A.M., Fifth Revised Edition entirely re-written. New York, Theo. Audel & Co., 63 Fifth Avenue, 1907.

Beauty as much as utility, appears to be the aim of manufacturers of automobiles, and this book has a proper beauty of its own. To

read it is the next best thing to owning a self-propelled vehicle. Indeed, this vicarious possession is free from some of the inconveniences associated with actual ownership. To read the book and study the drawings introduces one into a new world, and it is surprising how much of it an ignorant person can understand. To an expert the book must be a great joy.

MATERIA MEDICA FOR NURSES. By EMILY M. A. STONEY. 12mo, 300 pages. Third edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $1.50 net. Canadian agents, J. A. Carveth, & Co.

Nurses, by this time, must be a well-instructed class, if they study all the books which are written for them. Here is a book of near 300 pages, containing all of materia medica, which it is necessary for a physician to know. It is in its third edition, which is evidence that nurses do study the courses which are arranged for them.

Medical News.

MONTREAL GENERAL HOSPITAL.

The eighty-fifth annual meeting of the Montreal General Hospital was held on February 19th.

The report of the secretary, submitted by Dr. F. G. Finley, recorded the deaths of nineteen life governors during the year. The report showed that of the 3,458 indoor patients treated to a conclusion, 190 remained over from the previous year; 3,473 were admitted during 1906, and 205 remained in the hospital at the end of the year. There were discharged from the hospital 3,204, and there died in the institution 254. The percentage of mortality was 7.3, or exclusive of deaths within three days of admission, 4.2. The average number of patients in the wards per diem was 201.02. The average number of days in hospital per patient was 30.102, and the aggregate number of days in hospital by all patients was 73,373, an increase of 534 as compared with the previous year. The average daily cost per patient was $1.54.

Of the indoor patients treated to a conclusion, 2,339 were males and 1,119 females, and the religions were represented by: Protestants, 1,735; Roman Catholics, 1,424; other religions, 299. Of these, 2,847 were citizens, 502 strangers, 101 sailors, and 8 immigrants.

Outdoor patients during the year numbered 46,982, and they were treated as follows:—Medical department, 10,905; surgical, 19,987; eye

and ear, 4951; gynæcological, 1,741; laryngological, 2,991; dermatological, 1,764; neurological, 2,362; dental, 221; emergency, 2,030. The ambulance responded to 1,628 calls.

According to the report of the President the income for the past year amounted to $102,318, and the expenditure to $113,187, being an excess of expenditure over income of $10,869.

During the year legacies without conditions had been received as follows, and added to the reserve fund: Estate late E. H. King, $100,000; estate William Francis, $4,500; estate Mrs. E. H. King, $2,500; estate G. M. Kinghorn, $1,000; estate Mrs, Alex. Keith, $990; estate late Chas. Alexander, $500; estate James Poustie, $200; estate George Outram, $45. In addition, a legacy of $40,000 had been received from the estate of the late James Moore, and specially invested, being subject to the payment of four annuities to legatees, amounting to $1,476.

To the endowment fund the following donations had been received during the year: Mrs. D. Torrance, New York, $5,000; Mrs. J. and Mrs. J. M. Pangman, $2,000; Dominion Commercial Travellers' Association, $2,000; a friend, $2,500; Mrs. D. Williamson, $2,000. The balance at the credit of this account on December 31 was $98,000.

Total subscriptions to the Alexander Fund amounted to $211,859, payment being spread over five years. Of this amount, there was at present at the credit of the fund, in the bank, $96,050.

The following officers were elected:—President, Mr. James Crathern; vice-president, Mr. H. Stikeman; treasurer, Mr. F. W. Evans; secretary, Dr. F. G. Finley.

The president, vice-president and treasurer, with the following, were elected the committee of management for the ensuing year: Dr. F. J. Shepherd, Messrs. David Morrice, J. B. Learmont, G. F. C. Smith, A. W. Hooper, James Reid Wilson, S. H. Ewing, Abner Kingman, Hugh Graham and Sir Montague Allan.

The medical staff was elected for one year as follows: Physicians, Drs. W. A. Molson, A. D. Blackader, F. G. Finley, H. A. Lafleur. Surgeons: Drs. F. J. Shepherd, G. E. Armstrong, J. Alex. Hutchison, J. M. Elder.

In the outdoor department the following were elected for one year: Physicians, Drs. G. Gordon Campbell, S. Ridley McKenzie, C. A. Peters, A. H. Gordon, C. P. Howard, A. G. Nicholls. Surgeons: Drs. Kenneth Cameron, E. M. Von Eberts, A T. Bazin, A. R. Pennoyer, W. L. Barlow, R. P. Campbell.

For one year the following specialists were elected: Oculist and aurist, Dr. G. H. Mathewson; assistant oculist and aurist, Dr. S. H. McKee; gynæcologist, Dr. F. A. L. Lockhart; laryngologist, Dr. H. D. Hamilton; assistant laryngologist, Dr. R. H. Craig; neurologist, Dr. D. A. Shirres.

ALEXANDRA HOSPITAL.

The second annual meeting of the Alexandra Hospital for contagious diseases was held on February 28th. The report of the superintendent showed that, on 9th July, 1906, the first patient, suffering from diphtheria, was admitted. Since that time there have been 293 admissions to the hospital. Of these, 244 have been city patients, namely, public patients from within the city limits. The total number of days of treatment received by these patients has been 5,383; the daily average in hospital, 22.15. In addition to these, there have been treated 26 patients, for the support of whom the city is not responsible, and 23 private cases.

Of the 293 admissions, 222 have left the hospital well, 3 relieved, 15 dead, and 53 are still under treatment. The whole mortality rate has been a little over 5 per cent., and chiefly in the diphtheria cases. Of the 158 cases of diphtheria treated only 12 died. Out of 74 cases of scarlet fever, one died, and from 42 cases of measles one death resulted.

The average cost per patient per day for the six months from July to December, 1906, was $1.24, while at the Boston City Hospital, when the record was last published, it was $1.46. Again, while at the Alexandra the average cost of uncooked provisions for the same period was per day 0.24 cents, an average of six American hospitals for the year 1904 gives a cost of 0.32 cents per day.

The following financial statement was presented:

Amount collected to date from citizens	$191,524.88
Amount expended on buildings and equipment ..	266,267.79
Balance due to the Bank of Montreal	95,698.16
Balance still due contractors and tradesmen	16,982.98
Amount required to place hospital out of debt ..	112,681.14

The President announced that the civic grant of $15,000 had been increased to $30,000.

THE TORONTO GENERAL HOSPITAL.

We congratulate the Toronto General Hospital upon the good work shown in its annual report for the year ending Sept. 30th, 1906, upon the progress made and the prospects for further

advancement. There is, it is true, a deficit in maintenance of some $14,000 in an annual expenditure of $140,000; but we note an advance of equipment and in accommodation in many ways that speaks eloquently for the progress of the institution. The maximum number of indoor patients was 356, the total 4,085, there were 1,306 operations; 104,645 hospital days. 296 deaths occurred, and 158 autopsies are reported from the pathological department. The assets of the hospital are nearly $1,100,000; and $1,217,767 has been raised for the erection of the new hospital.

Early in the year, the Ontario Government fitted up two wards, of twelve beds, for the reception of patients suffering from nervous affections, short of insanity, the first formal attempt to treat such patients in the wards of a general hospital. The result, for a beginning, has been satisfactory. An out-clinic for tuberculous patients has also proved very useful. The nursing staff numbers 96. J. N. E. Brown, M.B., is the superintendent and Miss Mary Snively the lady superintendent.

TORONTO ACADEMY OF MEDICINE.

Organization of the "Academy of Medicine, Toronto," is practically completed after an agitation extending over several years. The new association will have its headquarters in the Ontario Medical Library Association building, in Queen's Park, but plans have been made to raise $50,000 among the members of the profession in Toronto, and a big structure will be erected. The Library Association is the main nucleus, but there will be three other societies amalgamated with it, the Toronto Medical, Clinical and Pathological societies. These three will go out of existence and meet now as sections of the academy. This is the first academy to be formed in Canada. The object is thus set forth: "The advancement of the art and science of medicine with its collateral branches, the promotion and maintenance of an efficient library and museum; professional improvement; the cultivation of harmony and good feeling among the fellows, and the promotion of the corporate influence of the profession in its relation to the community."

The academy will be managed by a council of twelve. The first one will be composed of the officials of the Library Association, and the president and secretary of the other three societies. These will choose their own officers. Succeeding councils will be composed of nineteen members.

Besides the ordinary members, there will be resident and non-resident fellows.

The officers of the four societies are: President, Dr. J. F. W. Ross; vice-president, Dr. Alex. McPhedran; secretary, Dr. H. J. Hamilton; treasurer, Dr. J. B. Gibb Wishart. Medical society—President, Dr. Rudolf. Clinical Society, president, Dr. H. B. Anderson. Pathological—Dr. J. A. Amyot.

CANADIAN MEDICAL ASSOCIATION, MONTREAL SEPTEMBER 11th, 12th, 13th, 1907.

WORKING COMMITTEES.

Medicine.—Drs. Cushing, Finley, Gordon, Lafleur, Martin, Nicholl, Peters, Richer. Surgery.—Drs. Armstrong, Archibald, Bell, Barlow, Bazin, Elder, England, Garrow, Monod, Forbes, von Eberts. Dermatology.—Drs. Jack, Shepherd. State Medicine.—Drs. McTaggart, Laberge, Starkey. Laboratory Workers.—Drs. Keenan, Yates, Duval, Adami, Klotz, Bruere. Pediatrics.—Drs. Blackader, Gordon Campbell, Fry, Shaw, Francis. Gynaecology.—Drs. Chipman, Gardner, Lockhart, Lapthorn-Smith. Museum.—Drs. Adami, Maud Abbott. Eye.—Drs. Byers, J. J. Gardner, Stirling, McKee, Tooke. Laryngology.—Drs. H. S. Birkett, R. Craig, Jamieson, H. D. Hamilton. Neurology.—Drs. Shirres, Colin Russell. Obstetrics.—Drs. Cameron, Evans, Reddy, Little.

HOTEL DIEU.

For the year from January 1st to December 31st, 1906, the report of the Hotel Dieu shows that 3,112 were admitted for treatment. As there were 169 patients in the hospital on December 31, 1905, the total number treated at the indoor department during the year was 3,281.

Of this number 2,856 were discharged, 224 died and 201 remain in the hospital. The total number of days' treatment given at the indoor department was 73,489.

During the year, 1,638 operations were performed. At the eye dispensary, in connexion with the outdoor department, 14,500 consultations were given, and 701 operations of various kinds, performed. In the electro-therapeutic department, 6,784 cases were treated, and 4,612 consultations given.

ROYAL VICTORIA HOSPITAL.

Monthly report for January: Patients admitted, 319; discharged, 272; died, 18. Medical, 109; surgical, 113; ophthalmological, 20; gynæcological, 33; laryngological, 44. Outdoor Department: Medical.

741; surgical, 708; eye, 266; diseases of women, 109; nose, throat and ear, 486. Total, 2310. Ambulance calls, 110.

During the month of January 287 patients were admitted to the Montreal General Hospital, and 261 were discharged. There were 20 deaths, eight of which occurred within three days of admission. The average daily sick in the hospital was 209, and the highest number on any one day 225. Out-door consultations numbered 4,306. The ambulance made 143 runs in response to calls. The average number of visitors at the hospital on visiting days was 335.

The Oxford County Medical Association was formed on January 21st. The following officers were elected:—Honorary Presidents, Dr. Joy, Tilsonburg; Dr. Williams, Ingersoll; Dr. Adams, Embro; President, Dr. A. B. Welford, Woodstock; vice-president, Dr. Brodie, Woodstock; treasurer, Dr. Neff, Ingersoll; executive committee, Drs. Parke and Mearns, Woodstock; Dr. Green, Embro; Dr. Coleridge, Ingersoll; Dr. Staples, Princeton.

Newfoundland has one physician to every 2,419 people. Of all the names on the register of the island, 50 are those of men who registered there for the purpose of fulfilling the requirement for ship-surgeon, where a British registration was necessary. The low registration fee was an inducement.

The physicians of Haldimand County have formed an association. The officers are: Honorary President, Dr. Harrison; vice-president, Dr. Kerr; treasurer, Dr. Jacques; recording-secretary, Dr. Maw; corresponding secretary, Dr. Arrell.

The new detention hospital for patients suffering from trachoma at Halifax is ready for occupation, and has already been taken over by the Government from the contractors.

Dr. John James Blacklock died at Morrisburg. He was for forty years coroner of Stormont, Dundas and Glengarry. Dr. Blacklock was born at Williamstown, Glengarry, 1823, and was the eldest son of the late Dr. Ambrose Blacklock, Surgeon of the Royal Navy. He studied medicine with the late Dr. Douglas of Quebec and graduated from McGill in 1851.

Dr. A. T. Dunn, of North Augusta, Grenville Co., Ont., died on Jan. 16th at an advanced age. He was a graduate of Queen's University, and for the last four or five years has been unable to practice his profession on account of ill-health.

Dr. Andrew Harkness, of Lancaster, Ont., died of pneumonia, on Feb. 6th. He was a graduate of McGill University and was in his 62nd year.

Dr. James Primrose, of Bridgetown, N.S., died on Jan. 24th, in his 61st year, of cancer.

Dr. Andrew T. Dunn died in North Augusta, Ontario. He was a graduate of Queen's University.

Dr. J. G. Hardy, of Carlyle, Sask., died early in January.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

HUGH CABOT, M.D., and HORACE BINNEY, M.D. "Fractures of the Os Calcis and Astragalus." *Annals of Surgery*, Jan. 1907.

The X-Rays have shown these fractures to be more frequent than they were formerly considered, and have helped us materially in adopting proper lines of treatment. The deductions given in this paper are founded on a series of 111 cases, and add considerably to our knowledge of these fractures. As would be expected they occur chiefly among men in the prime of life, whose age and occupation expose them to external violence. Fractures of the os calcis are mainly true compression fractures and due to a fall from a height, the bone being crushed between the safe-guarded astragalus above and the ground or floor beneath. In some cases it may be broken by direct violence but this is not common. It was found that the astragalus was more frequently fractured as a result of falling from a height than by direct violence, but that the latter factor was more frequent than in the case of the os calcis. Three chief forms of fracture of the os calcis are described, (1) that in which the fracture has been confined largely to that portion of the os calcis

lying behind a vertical plane through the body of the astragalus. These are described as heel fragments and may be small or large. (2.) Where the force has been expended on the anterior half of the bone, the so-called anterior comminution, all the cases having two or more fragments. (3.) Where the entire bone is crushed and shattered. Fracture of the sustentaculum tali has not occurred as a distinct type, and is regarded only as an incident of the whole injury and not in itself important. The chief forms of fracture of the astragalus are of the neck and body, the former being the more frequent. Attention is drawn to the possible presence of the os trigonum in cases of supposed fracture of the posterior edge of the astragalus.

The prognosis in these fractures is very far from being as favourable in other fractures. No case was seen with anything approaching a return to the normal, and in the great majority there was marked limitation of lateral movement. As would be expected, fracture of the neck of the astragalus gives a worse result than fracture of the os calcis. The average duration of disability for fracture of the os calcis was somewhat in excess of six months, that of the astragalus about a year. Another factor influencing the prognosis is the marked *thickening* found in the region of the external malleolus. Frequently the pain is referred to this place, and removal of the overgrowth of bone is followed by much improvement. In general the treatment is similar to most fracture cases, and plaster bandage is preferred where a retaining splint is necessary. The foot must not be placed on the floor to bear weight for a full two months.

In fractures of the neck of the astragalus where the displaced fragment threatens the vitality of the overlying skin, it must be replaced by manipulation, if possible, or if not, by the open method. If the fragment be large it may be sutured, if small it is best excised. The same applies to fracture of the neck with rotation of posterior fragment. Fracture of the body is generally impacted and complicated by fracture of the os calcis. Here the result is likely to be bad, and operative interference not likely to improve things. In both small and large heel fragments of the os calcis operation is indicated, in other fractures the expectant plan is advocated. The paper is much enhanced in value by the excellent skiagrams appended.

Dr. Hermann Kummell. "Modern Surgery of the Kidney." *Surg. Gynec. Obstr.* Jan. 1907.

The recent and marked advance in our knowledge of renal surgery depends chiefly on information gained from the

X-Ray tube, the cystoscope, ureteral catheter, and the methods of investigating the functional activity of the kidneys, notably cryoscopy. With improved technique it is now possible to make a definite diagnosis of the presence or absence of renal calculus in every case. The principal factors in obtaining successful skiagrams are a well selected position of the patient, a good soft tube and a well adapted diaphragm. Several skiagrams must be taken and must show a shadow constant in outline and position. This constancy is essential to a differential diagnosis and is characteristic of calculus. Several methods have been advocated for collecting the separate urines, but none can equal that of ureteral catheterization. The urine segregators have all been tried and found unreliable. Turning to the most recent advance made in renal disease, the determination of the functional capacity of the kidney, it has been found that cryoscopy of the blood and urines gives the most accurate results. The phloridzin method is another important help. Methylene blue and indigo carmine have also been employed, the latter being preferred as it is less altered in colour by the urine. These are of use particularly when difficulty is experienced in finding the ureteral orifices. The estimation of the amount of urea in the separate urines is another important method. In general it may be said that the estimation of urea agrees with the more accurate results obtained by cryoscopy. When we have but a small amount of urine, say from 1 to 2 c.c. at our disposal, we possess a valuable method of examination in the determination of the electrical conductivity, which is made possible by the parallelism which exist between results obtained by this method and by cryoscopy. As a result of careful examination of the blood and urine in some seven hundred cases the following conclusions are drawn. If the kidneys are intact, the molecular concentration of the blood is constant, and, on the average, corresponds to a freezing point of 0.56°. In weakened and anæmic individuals, figures of 0.55° or even of 0.53° and 0.52° were sometimes observed. Unilateral disease causes no change in the freezing-point of the blood. That the normal freezing point of the blood proves only that so much functionating kidney tissue is present as is necessary to excrete completely the products of tissue metabolism. That ureteral catheterization and the thorough examination of the two urines for the urea content, freezing point, phloridzin test, electrical conductivity, along with the ordinary chemical and microscopical examination will give positive evidence of the presence of only one or both kidneys and their respective functional capacity. A lowering of the freezing point

of the blood indicates that the kidneys are not entirely equal to the required work. If it falls to 0.60° nephrectomy should not be undertaken, and nephrotomy only when absolutely necessary. No more striking proof of the value of these newer methods of estimating the presence of renal disease and the individual's ability to stand operative interference can be given than a comparison of the mortality attending nephrectomy prior to the new routine. Formerly, one in every six nephrectomy cases died from absence or insufficiency of the other organ, a mortality of 16 2-3 per cent; where an accurate application was made of the newer diagnostic helps there has not been one death in 148 nephrectomies.

W. L. B.

CHARLES PHELPS. "The Question of Early Operation in Cases of Intracranial Injury. *Annals of Surgery*, December, 1906.

One naturally turns with interest to anything by one so well-known in this field of surgery as is Phelps. The present article is one which, while repeating some of the statistical conclusions of his book upon cranial injuries, is meant more especially to record his beliefs with regard to the indications for operation in these cases. One may only refer in passing to two or three points upon which he has always laid emphasis, and which are here repeated; for example; the value of a progressive rise in temperature as pathognomonic of severe cerebral contusion; the fact that a temperature of 105° or over gives an absolutely fatal prognosis; and the fact that the persistent loss of urinary and fæcal control is extremely strong evidence of severe cerebral contusion.

For the discussion of the indications for operation he divides the cases into several main classes. First, the epidural hæmorrhage; second, subdural injury or so-called "meningeal contusion," usually accompanied by pial hæmorrhage, occasionally by localised serous effusion, or by cortical hæmorrhages—representing conditions of a medium grade of severity; and third, the severe cerebral contusions and lacerations. In the cases of the first class he is naturally for operation. In the more severe cases of the last class, which plainly must lead in a short time to death, he is also naturally against operation. But with regard to the large class of intermediate grades of severity Phelps is very strongly conservative. Lesions with focal signs, such as paralysis of the extremities, may occasionally afford legitimate reason for operation, but "it is questionable if the result will often justify expectation." He thinks experience has not demonstrated that operation adds to the patient's chances of recovery.

A cerebral lesion which probably exists in all intracranial traumatisms, and is the direct cause of death in a large proportion of fatal cases, is a general hyperæmia and œdema, which primarily exerts an intracerebral pressure, coincidently or secondarily deranges cellular nutrition, and ultimately tends to destroy vital functions. . . . If any good can come from trephining in such cases it must be by relieving intracerebral pressure, and thus permitting the re-establishment of the normal capillary circulation and the restoration of normal nutritive processes." He draws attention to the fact that the importance of œdema as a distinct and often fatal lesion has only lately begun to be appreciated. The argument which follows he bases upon the experimental work of Cannon, which seemed to demonstrate that an intracranial injury by deranging local circulation, led to internal nutritive changes in the tissue cells, this in turn leading to increased internal osmotic pressure, with passage of water into the tissues; "in which process the usual rise of blood pressure was by no means a necessary factor, in fact had but little to do with it." If a progressively developing œdema is the frequent cause of a fatal ending by means of increasing intracerebral pressure, what now Phelps asks, can be done by operation? The answer he gives seems somewhat illogical. Cannon's investigations showed that the internal nutritive changes mentioned consisted practically in death or partial death of the cells due to the local anæmia produced by the injury; if now, Phelps says, the origin of the fatally progressive destruction of cells resides in greater part in the inherent defective nutrition which is the cause and not the result of the œdema, if the pressure from cerebral hyperæmia and the resultant œdema is not the essential cause of the cell-disintegration, and if this cell-disintegration is the real source of danger in the class of cases in which operation is oftenest held to be in question, then trephining, which can only relieve pressure, must be useless, and worse than useless because it makes possible new elements of danger.

In other words, as we understand it, Phelps is thinking of the death of the tissue cells as a sort of inherent and irremovable malady which operation cannot affect. It seems to us that he forgets that the *original* cause of this tissue death was the intracranial pressure, and that the result of these tissue changes, that is œdema, adds still further to this pressure from the cerebral side. Thus the complete picture is still one of cerebral compression, one of space diminution in the cranial box, and therefore, logically, the only relief must be in the direction of enlarging the cranial space. Phelps gives his view so epigramatically at the close of his paper that it is worth repeating:

"It is probable that those surgeons who operate early and often will save many cases which would otherwise have recovered sooner; and that

those who operate later in cases which have assumed a graver character will lose some which might have recovered if the cranium had been left intact. It has been the hope of surgeons who have been in the way of seeing many cases of intracranial injury that operation might be extended with advantage to these cases of cerebral traumatism, but the present state of our knowledge of the pathic conditions which obtain affords no reason for believing that this hope will be realized."

It may be remarked in closing that the paper lacks evidence of knowledge of, or, at least, attention to, the valuable recent work of Cushing, Frazier, Erlanger, Eyster and others, upon blood pressure as a factor in conditions of intracranial pressure.

E. W. A.

J. Bland Sutton, F.R.C.S., Eng. "Removal of the Gall Bladder." *Lancet*, Jan. 5, 1907.

The writer was led to consider the advisability of removing the gall bladder on account of the difficulty experienced in removing stones impacted, or more properly encapsuled, in the cystic duct. The results obtained were so good that he now adopts removal in all cases of cholecystitis. The consideration of some of the chief variations in the relation of the gall bladder to the liver is a necessary preliminary to a discussion on cholecystectomy. Four varieties are mentioned. The simplest condition is met with when the cystic duct is obstructed by a stone. When a gall bladder enlarges in this way, its surface, which is in contact with the liver, slowly drags upon the hepatic tissue, and it is usual to find on its anterior surface a tongue like process of varying length. An inflamed gall bladder will sometimes give a similar relation, but frequently we find it imbedded in its fossa by the congested liver substance so that often no portion of its fundus appears below the margin of the liver. In the chronic form this gives us the adherent, contracted, and useless organ which must be removed to effect a cure. The cystic duct may be very much elongated and become twisted as in a case reported by Wendel, or again it and the gall bladder may be elongated so as to resemble a pea-pod. The method of operation employed is in no essential part different from that generally employed for cholecystectomy. In these cases requiring drainage the cystic duct is left and a large drain inserted into it. Statistics collected from some of the chief general hospitals in London for 1905 show cholecystotomy to have a higher mortality rate than cholecystectomy, which is not, we think, the general experience. That cholecystectomy has an important position in surgical practice all will admit, that it should be made a routine procedure is open to argument.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

During the past year a large number of important papers have been published dealing with a variety of subjects relating to the *Circulatory System*. Three associations of physicians, the British Medical Association, the Association of American Physicians and the German Congress of Internal Medicine have given a large place to the hearing and discussion of the more important and more recent phases of cardiac physiology and pathology. It may be observed that the publications are rather of work done in recent years, but now for the first time assembled and presented to the medical world. The impetus given to the study of the circulatory phenomena by the graphic method is only now becoming apparent, while the stimulus to make careful observations upon the heart and pulse, by the introduction of new instruments and the improvement of the old makes one feel the truth of Sir Jas. Barr's remark recently made in Toronto "that the man who only studies the circulation with the aid of a stethoscope is a positive danger to society."

The work of Dr. Tawara, pupil of Prof. Aschoff, of the University of Freiburg, stands out prominently above all other publications during the past year.

Prof. Aschoff (*The British Med. Journal*, Oct. 27, 1906), in opening the discussion on Heart Block reviewed the work of Tawara, which was done in Marburg. This study was undertaken in order to determine an anatomical basis for the feebleness of the hypertrophied heart-muscle in heart disease, arterio-sclerosis and nephritis. Adopting the method of Krehl, 112 hearts were examined,—24 cases of valvular disease, of rheumatic origin (23), 16 cases of nephritis, 6 of arterio-sclerosis, 9 of pneumonia, etc. No satisfactory basis could be found (with the exception, perhaps, in the diphtheria hearts) in interstitial or parenchymatous changes, rheumatic subendothelial nodules, fibrous foci or anæmic infarcts with subsequent necrosis, for the weakness and often sudden failure of these hearts. Failing to explain the enfeeblement of the heart by the demonstration of extensive myocarditic processes, Dr. Tawara's attention was next directed to the condition of the connecting bundle (the bundle of His) first described by Stanley Kent and in 1899 by His, jr., and yet more recently and completely by Tawara himself.

This bundle does not participate in the hypertrophy of even the largest hearts and it has been suggested that this "peculiar system of muscle fibres, therefore, which is responsible for the rhythmical action

of the heart might be too small in proportion to the large mass of other heart muscle. This might serve to explain the gradual paralysis of the ventricle or, as the case may be, the relative weakness of the hypertrophied heart muscle." There has been found not infrequently in rheumatic cases actual destruction of the smaller or larger branches of the conducting system, by the already described rheumatic subendocardial nodules. Such inflammatory multiplications of cells finally destroy the muscle fibres of the conducting system. Aschoff says: "If this occurs in numerous places on the internal surface of the ventricle as I have been able to observe it to do in one case, it may readily be conceived that not only an irregularity, but eventually a complete stoppage of the ventricle must result." Even though the main stem is intact, small areas could scarcely cause much change in the cardiac activity. Aschoff closes his paper with the remark that "it remains for the future to decide to what extent irregularities in the heart's action and heart failure may be referred to changes which may be demonstrated anatomically in the conducting system."

The interesting papers of Mackenzie, Erlanger and Gibson on the same subject are found in this number of the *Journal* together with a case report by Sir James Barr.

Of much interest in this connection is the article on The Cause of the Heart Beat, by W. H. Howell(*The Journal of the Amer. Med. Assoc.*, June 2 and 9, 1906). Only a few abstracts can be made from this suggestive paper. "The following facts must be taken into account by any hypothesis which attempts to picture the processes causing the rhythmic contraction and dilatation of the heart muscle:

1. The heart possesses within itself a store of energy-yielding material such that it may continue to give many hundreds or thousands of contractions after its supply of nutriment has been cut off.

2. Each contraction whether caused normally or by an artificial stimulus is maximal and, therefore, probably uses up all the energy-yielding material, which is at that moment in an irritable condition, that is to say, in such a condition that it may be acted on by a stimulus.

3. The amount of this material is nil during the phase of systole, but increases in amount throughout the period of diastole.

4. If the above statements are correct it follows that the store of energy-yielding material in the heart exists in some non-irritable form and that during the phase of diastole a portion is converted into an irritable form capable of being acted on by a stimulus.

5. The presence of certain inorganic salts is necessary for this transformation from the non-irritable to the irritable condition.

From this point of view the rôle of the calcium or of the calcium and sodium salts consists in replacing the potassium and converting a part of the store of stable material into an unstable easily dissociable compound. An "inner stimulus" does not become necessary.

Inorganic salts of the blood and lymph play an essential rôle in the production of the heart-beat.

From the consideration of myocardium, cause of the beat, and the bundle of His, we may turn to see what work has been done with the endocardium, especially the valves, during the same period of time.

Drs. MacCallum and McClure, and Drs. Thayer and MacCallum have done some work, on The Mechanical effects of experimental Mitral Stenosis and Insufficiency; and Experimental studies of Cardiac Murmurs. (*Trans. of the Association of Amer. Physicians,* 1906.

The last named paper presents several points of interest. In conducting experiment IX. with the idea of observing whether with aortic insufficiency, the pressure in the left auricle was increased without coincident mitral insufficiency, there became audible over the left auricle and just below the valves a first, a second and then after a momentary pause, a third sound—a diastolic rumble in every way similar to the early diastolic murmur in some cases of mitral stenosis. When the heart became more rapid the rumble extended into pre-systolic phase simulating closely a mitral stenotic murmur. Gradually the murmur disappeared and one heard only a thud. This thud was clearly analogous in time to the so-called opening-snap of mitral stenosis and ascribed to the sudden tension of the thickened mitral valves with the beginning of diastole. Its character, however, was precisely that of the sound in proto-diastolic gallop rhythm heard under so many circumstances, especially in nephritis, etc., ascribed to the impact of auricular blood upon the ventricle which has lost its elasticity or to an active muscular dilatation of the ventricle. It seems from the character of this sound, a hum or a thud, coming just after the sceond sound, that it may be due to the entrance of blood from the auricle into the ventricle, even as it seems to occur in normal cases. Thayer and MacCallum observations would seem to show that a change in the character of the blood is favourable to the development of systolic murmurs at the base.

Conditions, too, which result in especially abrupt action of the right ventricle with a large excursion of the pulse wave in the pulmonary artery favour the bringing out of systolic murmurs at the pulmonary orifice.

In replying to the discussion on his paper Dr. Thayer indicated his intention to make some experiments for the purpose of observing cardio-

respiratory murmurs. Such a murmur with its cause demonstrated has been reported by Gallavardin and Bentter (*Lyon, Méd., June*, 1906). During life the murmur was thought to be cardio-pulmonary and differed from the murmur of aortic insufficience. Localized to the base of the heart, harsh and rasping in quality—varying in intensity from day to day and much more distinct in inspiration than in expiration. At the autopsy the aortic valves were free. Adhesions were found between the border of the right lung and the aorta and also a pericardiac symphysis was present. These adhesions of lung and aorta are regarded as the cause of the murmur. The lung through these adhesions was influenced by the aortic movements and local inspirations were caused by the collapse of the aorta in diastole,—a cardio-respiratory diastolic murmur.

Irregularity of the Heart. By H. E. Hering. xxiii Congress for Internal Medicine. In Munich, April, 1906.

Hering divides cardiac arrhythmia into five groups.

1. Pulsus irregularis respiratorius (The irregularity with respiration.)
2. The irregularity due to extra systole.
3. Constant irregularity of pulse.
4. That form due to disturbances in transmission of impulse. (überleitungsstörungen)
5. Alternating pulse. Pulsus alternans.

The first form Hering claims is but an exaggeration of a normal condition and must be considered as present only when decidedly manifest by easy breathing. It may be observed in the period of apnœa induced experimentally or by volition. The finding of such irregularity is normal in children and Hering does not concur with Mackenzie when he describes a special type of cardiac irregularity in children—for this according to Hering, is the Pulsus irregularis respiratorius. This type is found during convalescence from febrile diseases—in neurasthenia and in brain lesion with irritation of the vagus centre. Hering believes that p.i.r. is not to be considered as a sign of cardiac weakness but rather as an increased irritability of the nervous mechanism as evidence of the presence of tonus of the inhibitory fibres of the vagus.

2. Extra systole irregularity.

This group may be subdivided into three classes according as the extra systole is auricular, ventricular or atrio-ventricular in origin. The ventricular and atrio-ventricular forms are more frequent than the auricular. By the graphic method of examination only, including a tracing

of both heart and vein pulsation is one able to determine the form of arrhythmia present. The ventricular extra systole may come between two normal ventricular systoles without essentially altering the rhythm (interpolate). The ventricular systole may obliterate or take the place of the auricular extra systole (retrograde).

The extra stimuli bringing about the extra systoles can scarcely have their origin in the normal situation. They may be mechanical stimuli or certain chemical substances. But of whatever form, they doubtless influence the *anspruchsfähigkeit des Herzens.* By the way of the nervous system the extra systole may be called forth through the vaso-motor system, thus increasing the work of the ventricle by increasing the resistance in the vessels.

The clinical significance of extra systole is first of all the increased stimulus beyond the capacity of the heart. Of more importance perhaps at that moment is the strength or influence of the cause and its constant recurrence than the disturbance of the function itself. That is to say sporadic extra systoles have but little significance. When they are frequent they are important even though their cause is unimportant. It indicates, when frequent, either the cause is constant and severe or the power or strength (auspruchs fähigheit) is not equal to the task of carrying on the work and thus the physician must be watchful.

"Herzflimmern" is not Delirium cordis, for in the latter the heart beats, while in the former there is really no perceptible beat. Hering remarks that this condition of Herzlohmung has been seen by him immediately at the close of extra systole. It may affect the ventricle or the auricle or both and it explains sudden death in many instances.

3. The pulse of constant irregularity is one difficult of analysis because Hering finds associated with such cases always a ventricular venous pulse. The absence of the pulse from the auricle forbids final conclusions with respect to cause, etc.

Most likely in this form one has to do with an extra systole and at the same time an abnormal formation or influence of initial stimulus. The origin of the irregularity may be either the auricle or the bundle of His—scarcely the ventricle. From experiments made it appears fairly certain that this form of irregularity has its origin in the heart itself, and as it has so far been observed only in valvular disease this conclusion finds further support. He describes this irregularity as that uninfluenced by respiration and present whether the heart goes fast or slow. The irregularity remains, and during tachycardia it

is less pronounced though readily observed. When the heart is slowed by digitalis or otherwise the features of irregularity are still apparent, the longer periods being more influenced than the shorter. As this form of irregularity has not been observed in mitral insufficience without tricuspid insufficience being present some evidence is thus afforded for the view that the originating stimulus as in normal conditions arises in the right auricle. The clinical significance of this form of irregularity largely consists in its constant or almost constant relationship to tricuspid insufficiencies or to a venous pulse of ventricular origin. In one observation made by Hering the ventricular venous pulse disappeared and the auricular venous pulse was observed. At the same time the pulsus irregularis perpetuus disappeared to come again only on the re-appearance of the ventricular venous pulse.

4. The fourth form is that which we describe as *heart block*. The disturbances in the cardiac rhythm due to obstruction or to difficult transmission of the stimulus from the auricle to the ventricle.

Two groups are here described:—

(a) Temporary (Zeitweilligen) failure of ventricular systole.

(b) Dissociation.

The factor causing the irregularity in the first group is chiefly digitalis. Experiment bears this out. The auricle may be working while the ventricle is practically at a standstill under the influence of digitalis of Czermak experiment of pressure upon the vagus. These may be a result of the effects of digitalis upon the *connecting bundle*.

By the term "Dissociation" Hering describes those forms of irregularity due to a lesion of the Bundle of His. He says that such cases may be suspected when the ventricular action is about 30 per minute and determined when the subcutaneous injection of atropin or the vagus pressure test of Czermak no essential change in rate can be induced.

5.—*Pulsus Alternans* first described by Traube (1872) refers to the volume difference and not to time, (irregularity of volume). A large pulse followed by a small pulse. A small pulse by a large one. For some time Hering explained this form of pulse under the term of Herz bigeminie or *pulsus pseudo alternans*. He now describes it without the qualifying term "pseudo."

His explanations of this form of pulse with its definitions are not clear. In all cases observed by Hering there was grave cardiac disease present nephritis and endocarditis.

The nutrition of the heart may be disturbed and when severe enough calls forth this irregular action—under ordinary action of the heart. If

however, the disturbance is only slight the irregularity becomes apparent only when the heart's action is increased. Prognostically the smaller the small wave the graver is the cardiac disease causing the symptom.

Of these five groups the two first mentioned are the most common while with the exception of the form known as the respiratory arrhythmia, the heart itself is the seat of the causes of arrhythmia. The heart plays the role of an indicator of extra cardial conditions very frequently, but in these forms of arrhythmia—in extra systole in the p. i. perpetuus,—in many cases of ventricular contraction failure, in dissociation, in the alternating pulse the heart itself is affected—and the cause is immediately within the heart or affects the change through vasomotor disturbances.

In closing his paper on the irregularity of the heart, Hering made brief reference to the theories of cardiac movements, the neurogenic and the myogenic, and declared the importance which arrhythmia possessed independently of all theories.

The myogenic theory had strong support in the established function of the bundle of His.

Gallop Rhythm of the Heart. Friedrich Muller. Münich. Med. Woch, 1906. 785.

Gallop rhythm of the heart is the normal rhythm with a third sound interposed either in first half of diastole or in the presystolic period. In either instance, of course, the sound occurs in diastole, but according as it is in the first half or the last half of that period it is termed protodiastolic or presystolic. The cause of the sound has been the subject of discussion. An unusually large amount of blood being thrown into the ventricle, or a loss of tone in the ventricular wall might account for the presystolic sound, or again as the auricle is often found both hypertrophied and dilated, the sound has been thought to be due to an exaggerated activity of this part of the heart.

The presystolic and protodiastolic rhythms may change the one into the other and usually the former into the latter.

Gallop rhythm is usually found associated with cardiac failure and the curves which Müller publishes rather go to show that the ventricle is working against great resistance. The lessened cardiac power, the increased resistance, and the rapid heart action combine to produce the rhythm described—conductivity being lowered.

The position of the heart in pericardial effusions. (Schapozhnikoff. Rev. de Méd. 1905. xxv. 789) with an epitome in *The American Journal* of the Medical Sciences, vol. 131, page 712, is discussed with relation to paracentesis pericardii. There is no reason to accept as a rule

that, with the increase of the exudate in the pericardium, the heart must of necessity fall backward, because of the fact that it has a greater specific gravity than the surrounding liquid."

The puncture of the pericardium as generally advised in the fourth of fifth left intercostal spaces is not an advisable procedure as this is the spot in which one is most likely to *reach the heart*. Puncture in the third or fourth right intercostal space close to the sternal border as well as in the sixth left intercostal space is preferable especially if one finds an absolute dulness at these points. In the case of an abundant exudate the sixth left intercostal space is preferable because here the pleura is pushed farther outward and the diaphragm is depressed.

If the vessels of the heart are ligatured and divided, the heart thus set free falls to the bottom of the pericardial cavity, but when depressed by pressure while the vessels are intact it always rose again to the upper part of the cavity.

Sears. *Exploratory puncture of the pericardium with a report of three cases.* (Boston M. & Surg. Journal, Nov. 22, 1906) and Dock *Paracentesis of the pericardium.* (The Brit. Med. Journ., Oct. 20, 1906), contribute their experience in this operation while the general aspects of the subject are discussed by each. Sears has had personal observation of 13 cases with positive results in 8 cases. He chose the fourth and fifth right spaces, the fifth and sixth left inter-spaces, at or beyond the extreme limit of dulness, making twenty-three attempts. His greatest number of successes were obtained through the fifth or sixth space at or beyond the outer limit of dulness. This route has the great disadvantage of traversing the pleura and often the lung and is especially unfavourable in purulent pericarditis. Sears says the needle always comes in contact with the heart during some part of the process. In fact that organ is sought when the flow is not immediate in order to insure the presence of the needle in the sac. The heart seems very tolerant of puncture and according to evidence here adduced from West and others, the operation from the point of view of cardiac injury must be considered reasonably safe. Sears regrets that paracentesis pericardis is so rarely resorted to and so reluctantly undertaken, and urges its early and more frequent adoption where there is marked pericardial effusion. Dock discusses the methods of paracentesis and opening of the pericardium, remarking that operations upon the pericardium are never free of danger, but they are justified by the possibility of more serious danger that exists in many cases.

Further reports on the value of X-Ray in the *diagnosis of pulmonary tuberculosis have* been made during the past year. H. Adam (Verhandlungen des Kongresses fur Innere Medicin 673 xxiii Kongress),

and Lehmann and Voorsanger (Amer. Journal Med. Sciences, Vol. 132, page 527) reach practically the same conclusions.

The clinical and X-ray findings agree in the main but in the majority of cases the X-rays afforded valuable information as to the *extent* of the lesions, often more widespread than the ordinary clinical evidences suggest. In certain cases reported by Adam, the X-ray method revealed the presence of a lesion,—infiltration without catarrhal symptoms, earlier than the ordinary clinical methods.

Rieder (Münich. Wochen No. 17, 1906) maintains that the early diagnosis of lung abscess is now possible through the use of the X-ray. It seems no longer necessary to await the appearance of copious fœtid expectoration with elastic fibres, lung tissue and hœmatoidin. Rieder claims that it is not difficult to distinguish lung abscess from circumscribed pleural exudate, tuberculous cavities and localized pneumothorax. The same observer writes of the value of the Rœntgen rays in deciding upon the preserver of pneumonic areas before they are clinically located (Munich. *Med. Woch,* 1906. Nos. 40, 41). In cases observed by him the existence of central pneumonia has been demonstrated. At first near the hilum of the lung, the infiltration extends.

The application of X-rays to the treatment of disease has been discussed in several papers. Heineke made an experimental investigation of the action of these rays upon the bone marrow. (Deut. Zeit. f. Chir. Bd. lxxviii, page 196) and describes in his paper that he observed a destructive action exerted upon the lymphoid tissues, especially the spleen and lymph glands of the guinea-pig. It would appear that the Rœntgen rays had a selective action for these tissues. The lymphocytes were first destroyed, then the granular and non-granular myelocytes and last of all the polymorpho-nuclear neutrophiles. All the white cells of the bone marrow were destroyed. Regeneration took place slowly. From the experiments thus made Heineke concludes concerning the treatment of tumours with X-rays that if they are cellular they disappear rapidly under the treatment, but if fibrous they are but little if at all affected.

Improvement too, seems to be only transitory in the most favourable primary results for regeneration is the rule.

The influence of Rœntgen rays on the blood and blood-forming organs is the subject discussed by Barjon in *Lyon, Médicale,* Aug. 1906. This paper is based upon 200 published cases of leucocythæmia treated by X-rays directed upon the ends of long bones, the spleen and the lymphatic glands.

At first the white cells increase, to be followed by a progressive decrease. The number of the polynuclear leucocytes increases while the myelocytes gradually disappear. In the red cells and hæmo-

globin there seems to be but little change. The enlarged glands and spleen diminish in size. Two cases of progressive pernicious anæmia were subjected to the X-ray treatment. In one the nucleated red cells increased, while in the other a marked increase in the number of the red cells and a general improvement followed. The report of this treatment contains a note of the untoward action of X-rays that pleurisy with effusion resulted in several cases.

Edsall and Pemberton have applied the X-Ray in *unresolved pneumonia* and in the same paper report upon the nature of the *general toxic reaction after X-ray exposure.* (Trans. Assoc. of Amer. Physicians, 1906.) The result of the treatment of the three cases was in each instance a rapid clearing up of most—in two cases practically all—of the signs of consolidation that had previously persisted in the three cases respectively for one month, two weeks and thirteen days without improvement. "The nature of the toxic reaction to the X-ray would appear to us to be a sudden demand upon the organism for the complete disintegration and excretion of a large amount of the products of tissue break-down with inability on the part of the organism to accomplish this, and a consequent halting of metabolism resulting in an intoxication produced by incompletely disintegrated tissue remnants. While X-ray treatment of various diseases is having a more general and at the same time a more specific application, there is a tendency to apply the serum principle of treatment yet more widely. As examples of this, one may mention the typhoid serum of Chautemesse —Maremorek's antitubercular serum, Mœbius serum and that of Beebe and Rogers for exophthalmic goitre, and the modified vaccine treatment of a variety of diseases based upon the opsonic index which has been already so fully renewed. One notices at the same time that the use of anti-tetanic serum is more frequently reported and that much larger doses of diphtheria anti-toxin are being given than some years ago. *The Journal of the Amer. Med. Assoc.,* 1906.

A New Reflex.—(Uber einen neuen Reflex. Zwerchfell reflex) is described by Hess. (*Munich. Med. Wochen* No. 36, 1906). It is induced by gently irritating the nipple on either side by a light percussion stroke or weak electric currency. It consists in an epigastric retraction with a pulling in of the Xiphoid process and is by Hess referred to the action of the diaphragm. The old do not show this movement as it is only active while the Xiphoid is yet cartilaginous. It is promptest in the height of inspiration. The movement of the diaphragm which Hess claims accounts for the reflex is not visible with the fluoroscope. The path of impulses afferent and efferent is not yet certain.

In the examination of the thorax several new methods have been brought forward or old methods reviewed and emphasized.

Great importance of the study of the apical outline, Krœnig's sign, in the diagnosis of incipient pulmonary tuberculosis is urged by Minor. (*Amer. Journal Med. Sciences, Vol.* 132, *page* 522). Minor claims that this diagnostic measure is too often neglected.

Bi-manual pressure of the thorax. (La pression bimanuelle du thorax) is described by Beaufumé as a means of differentiating between consolidation of the lung and fluid in the pleura. In case of the latter the thorax half containing the fluid is practically incompressible. (*Tribune Méd.* No. 26). Upon Grocco's triangle in Pleurisy, Ranchfuss, Plessi and Ewart have recently had their say. Grocco's triangle is that paravertebral triangle of diminished resonance on the side opposite the effusion due according to all these writers to lateral displacement of the mediastinum. Koranyi (Zeitschrift f. Klin Med. 1906, lx. 295) claims that he described this triangle as early as 1897, giving credit, however, of independent description to Grocco. Ewart suggests that the effusion diminishes the vibration of the spinal column.

Hamburger, (Weiner k. Wochen, No. 14, 1906), also discusses these signs. He claims that in all cases of pleural effusion it is possible to distinguish four areas giving different notes on percussion. These four zones or areas pass gradually into one another. They are not sharply defined. Each thorax half possesses two zones. A paravertebral zone of dulness and beyond laterally a zone of clearer note over the well or healthy side. While on the affected side a paravertebral area of relative clearness (i.e. diminished resonance only) as compared with the marked dulness laterally.

V. Jaksch reported a case of Amylosis of the Lungs before the Congress held in Münich in April, 1906. (Verhand d. K. f. I. Med.) The patient had been a helper in a mill for 36 years. He was much reduced in weight and strength, the subject of chronic nephritis with enlargement of the heart and œdema. He coughed and expectorated. The sputum often of a rusty brown colour and of foul odor was examined in every way to determine the presence of tubercle bacilli. None were found. Even the test of injecting guinea-pigs proved negative. There was constantly present in the sputum, even when no starchy food was taken starch granules which when rubbed up with 10 per cent iodo-potassium iodine solution gave the characteristic deep blue colour reaction. V. Jaksch regards his case as one in which the flour exerts the same influence as chalk or lime i.e. as a foreign body exciting inflamma-

tory reaction and thus accounting for cough, physical signs and bloody sputum.

ENTEROGENOUS CYANOSIS.—(Van den Bergh und a Grulterink. Berliner, k Wochen, No. 1, 1906).

By this term we understand a condition or symptom complex whose marked feature is cyanosis, associated with some intestinal disease, the lungs and heart being free. It has been found under different conditions as ulcerative enteritis, urethro-rectal fistula, chronic enteritis with choleraic seizures and collapse, and retention of bowel contents, Clubbing of the fingers and toes has been observed to develop and disappear with the onset and relief of the cyanotic features. Dyspnœa and those features of cardiac or respiratory cyanosis are wanting. An analysis of the blood divides the cases into two classes; those in which the blood is met—hæmoglobin and those in which the blood is sulpho-hæmoglobin.

While the nature of the substance causing sulpho-hæmoglobinæmia seems to be hydrogen sulphide, that inducing methæmoglobinæmia seems to be in all probability nitrites in the circulation, and it is suggested that there may be either an increased absorption or an excessive production of these nitrite bodies which have been found fixed to the corpuscles. They are possibly of bacterial origin.

W. F. H.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The ninth regular meeting of the Society was held Friday evening, February 1st, Dr. F. G. Finley, president, in the chair.

PARTIAL GASTRECTOMY FOR PYLORIC CANCER.

A. E. GARROW, M.D., and C. A. PETERS, M.D..—The report of this case appears on page 175.

F. R. ENGLAND, M.D.—I would like to ask Dr. Garrow's opinion as to how the gauze happened to be there. The case altogether is a most successful one and it would be interesting to note whether there was any recurrence later on.

A. E. GARROW, M.D.—We are unable to explain the presence of the gauze in the stools and the patient denied having swallowed it, though it is my impression that it had been swallowed. There certainly was no relation between the gauze packing in the wound, and that passed in the stool besides the diary of the case showed that each piece used had been accounted for.

COLIN K. RUSSEL, M.D., read the report of this case which appears on page 171 of this number of the JOURNAL.

F. J. SHEPHERD, M. D.—These cases strike me as being rather peculiar. I have seen many cases of these cervical ribs but it is only since the institution of the X-Rays that these smaller ribs have been detected with any certainty during life. Formerly the ordinary large cervical rib which almost completely circled the upper thorax and all those cases which articulated with the first rib could be plainly made out, but I have never seen one of these cases give rise to symptoms and I do not see why they should, the cervical rib being merely a separation of the anterior transverse process of the vertebræ and developing with the development of the individual. Thus I cannot understand why these symptoms should appear; that they do appear there is no doubt, but why I do not know. We do not know anything about the ossification of these ribs, whether it is by a single primary centre with probably no epiphysis at all or equipped as the normal rib. It has never been sufficiently explained to me why blood-vessels going over these are said to be affected by thrombotic conditions lower down. There are many cases of just such conditions and yet no cervical rib can be demonstrated.

C. K. RUSSEL, M.D.—There have been a great many cases reported in which no symptoms have occurred. Tillman collected 26 cases, 13 with symptoms and 13 without. These simply had been found in the ordinary routine of examination. As to the rib being the etiological factor of the sensory and motor paralysis, the cases operated on by Dr. Garrow shows that now the subjective pain and the sensory paralysis has disappeared and the hand has regained the same condition it was before operation, but it will take, I imagine, three or four years for those atrophied muscles to recover, if at all. Why these symptoms occur at late period of life is very difficult to say and being forced to offer some sort of explanation it seems to me possibly to be due to the ossification of the rib; the epiphyseal centres of which are supposed to become ossified between the 16th and 25th year, the rib becoming firmer and more immobile. Muscular use and development may also be an etiological factor. The symptoms occur in the right arm more frequently than the left. In one case, occurring in a man who had to do a great deal of writing, the symptoms appeared in the right hand so that he had to learn to use his left. The symptoms then disappeared from the right hand and as he shortly after began to use the typewriter, he has had practically no symptoms in either hand since.

MORE RECENT METHODS IN THE DIAGNOSIS OF RENAL AND URETERAL CONDITIONS.

G. E. ARMSTRONG, M.D., read this paper.

A. E. GARROW, M.D.—It seems to me that the chief lesson which Dr. Armstrong's paper teaches and emphazises, that in renal and genito-

urinary surgery recent methods of examination combined with the older methods enables us to make fewer mistakes in diagnosis. Three years ago I had an opportunity of seeing Kümmel, in Hamburg, demonstrate his methods of ascertainng the functional condition of diseased kidneys. I was impressed with the care bestowed on the examinations, one interne had charge of the work, and the apparatus employed was carefully corrected and adjusted by a competent instrument maker.

Cryoscopy of the blood is undoubtedly of much value in determining nephrectomy, in a diseased and functionally inactive condition of one kidney when catheterization of the other kidney fails to reveal evidence of disease.

With respect to skiagraphs not only must we get good plates, but we must have the assistance of an expert to interpret the shadows.

Then we have cases of renal hematuria accompanied by renal colic in which catheterization reveals the source of hæmorrhage, but the skiagraph shews nothing, a stone or tumour may be suspected, but exploratory incision exposes an apparently normal kidney and we regard the case as one of essential hematuria. Operative interference in renal disease is made more certain and safe as the result of data obtained from all methods of examination and of these in the opinion of those best qualified to judge and as the writer of the paper has shewn, cryoscopy of the blood, if accurately estimated is of the utmost importance.

F. J. Shepherd, M.D.—I should like to congratulate Dr. Armstrong on the excellence of his paper. It emphazises the fact that we should not operate upon kidneys, or bladders either, except after careful cystoscopic examination and this should be done by an expert. I have not had the success with X-Rays which Dr. Armstrong apparently has had. Some plates have failed to show the shadow of a stone and yet on cutting down I have found one the size of a marble. Again where the plate plainly indicated a stone I have found none. It seems to me it requires an expert often to see these wonderful things in X-Ray pictures. Often in these cases of hæmorrhage of the kidney where you cut down and do not find any stone it seems to be a good thing for the kidney, for very frequently the hæmorrhage and pain cease after the operation.

G. E. Armstrong, M.D.—I have a little more confidence in the X-Ray picture if it is taken several times and carefully read. So far only on one occasion did I mistake a stone. In cutting down upon these kidneys where nothing is found and where the incision is beneficial, this may be due to the separating of the adhesions in which often the kidney is imbedded.

OPERATED CEREBELLAR CYST WITH RECURRENT SYMPTOMS.

G. D. Robins, M.D. This case, a boy of six, was presented to the Society for fuller diagnosis. The patient was operated on by Dr. Archibald with relief of all the symptoms accompanying a cerebellar lesion. The symptoms, however, now showed signs of recurrence and the case was brought up for discussion.

W. F. Hamilton, M.D.—Dr. Robins and Dr. Archibald are to be congratulated on the accuracy of their diagnosis in this case. I saw the patient at their request, and, so far as I could decide at the time, the diagnosis resolved itself, in the highest probability, into a right-sided cerebellar lesion, chiefly because of the situation of the pain, the right-sided sixth nerve paralysis and also by reason of the deafness which, while not conclusive, was at all events suggestive of a lesion on that side. With respect to the views held in explaining the condition it seems to me that the suggestion of trauma at birth is the most likely one, and inasmuch as all the cyst wall was not taken away, the recurrence may be due to a continuance of the pathological changes going on there with secretion and retention of fluid. With regard to the "cracked pot note" mentioned as having been elicited I would like to have some information.

F. R. England, M.D.—I would like to ask what the after-treatment of the cyst was, and what was done with the part which was not removed surgically.

G. D. Robins, M.D.—With regard to the cranial percussion I would say that one could immediately elicit in this case a high pitched somewhat tympanitic note which we regarded as of the 'cracked pot' type. With regard to the 7th and 8th nerve being pressed upon I did not get a sufficiently clear view of the nerves themselves at operation to state definitely as to this, but clinically there was undoubted evidence of pressure upon the right facial nerve. The patient developed a right facial palsy within two or three days from the operation, which took several weeks to clear up.

H. S. Birkett, M.D.—I would like to ask if, at the time of operation the exact extent of the cyst was definitely determined, also if the 7th and 8th nerves were in any way pressed upon. The ear symptoms to me appear rather anomalous—a case presenting such definite cerebellar symptoms as this did without some involvement of the 8th nerve is not compatible with the present condition. Why the symptoms should be purely of an obstructive form is more than I can explain and it seems to me that if this cyst were so large as to press upon these nerves we would find more definite symptoms not only in the 8th but also in the 7th.

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MODERN METHODS IN RENAL AND URETERAL SURGERY.

BY

G. E. ARMSTRONG, M.D.

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In no department of surgery has the application of new principles and the use of new methods been of greater clinical value than in the extension of our resources in determining the pathological and functional variations in the kidney and ureter.

Until within comparatively recent times we were limited in the examination of the kidney to inspection, palpation, and the analysis of the combined urines from the two sides, together with the subjective symptoms of the patient. It is now a matter of wonder, not that unfortunate surprises and accidents were occasionally met with, but that they were not more common. To the many who contributed to the perfection of the cystoscope, and whose names you are all familiar with, we are indebted for our ability to inspect the interior of the bladder, to note the alterations in the position of the ureteral orifices, and to recognize foreign bodies, new growths, etc.

The value of the cystoscope was immeasurably enhanced when it was so modified and improved that we were enabled to pass the catheter along the ureter to the kidney. We can now determine whether the ureter is patent, narrowed, or obstructed, whether one or two kidneys are present, and their functional value.

Only second in value in modern surgery of the kidney is the X-ray apparatus. The use of this method in the diagnosis of calculi in the kidney and ureter requires experience and skill, but it is daily becoming of greater value.

For a time if it showed a stone distinctly, well and good, but if not, the absence was only regarded as negative evidence. To-day by carefully arranging the position of the patient, by using a soft tube and

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a well adapted diaphragm, Kümmell is able to say with his large experience that the X-ray will show a stone, if present, in every case, regardless of its chemical composition, and in stout or thin patients. The value of the X-ray is not only in demonstrating the presence of a stone but its situation as well. To accomplish this, more than one plate should be made. It is found that calculi generally remain in one position and therefore constancy is an important element in the diagnosis. The shadow of a renal calculus is generally a little away from the spinal column and about the level of the second lumbar vertebra or just below the 12th rib. Variations in position might suggest a horse-shoe kidney or a dilated pelvis with the stone in the lower part. In one of my cases the stone was shewn to be in the ureter, and I was able to go directly down upon it, without opening or disturbing the kidney. This rendered the operation more simple and safe. In another instance two oxalate calculi were distinctly shown in the kidney itself. We have found it advantageous to read the plate in a dark room, placing it in a frame in front of a good light. Kümmell sometimes uses an opera glass to get better definition.

I have not had any satisfactory results from the use of the segregator. I admit that my experience with it has been very limited. On several occasions I attempted to use Luy's pattern, but failed. On two different occasions, gentlemen professing to know how to use it and expressing faith in its efficiency visited my clinic and were afforded an opportunity of demonstrating its value. In both cases complete failure was frankly admitted by the operator.

In the following cases the ureters were catheterized by Dr. R. P. Campbell, late Medical Superintendent of the Montreal General Hospital, and I wish here to acknowledge my indebtedness to him, and to express my appreciation of his skill in this work, and his care and accuracy in carrying out the various examinations and tests of the urines removed. The catheterization of the ureters has been done as a rule, under local anæsthesia. If ether is given the flow of urine is temporarily so nearly arrested that, to get enough for examination, the patient must be returned to bed with the ureteral catheters in situ. It is obvious, therefore, if serious difficulty in finding the openings is encountered that no help can be obtained from the use of methylblue, as recommended by Castaigne or of indigo-carmine as recommended by Voelkers and Joseph. As a rule the operation is unpleasant and disagreeable, but not unbearable if the bladder and urethra are normal. The cystoscope and catheter are, of course, carefully sterilized and the bladder thoroughly washed out.

By catheterization of the ureters one determines in the first place whether the patient, has one or two kidneys. Congenital absence, although not common, does occur.

Dr. Gillies while pathologist at the Montreal General Hospital found, at autopsy, one kidney congenitally absent, in two cases. The need of deciding this point before doing a nephrectomy has, in the past been regarded by some surgeons of sufficient importance to justify, if necessary, a preliminary abdominal incision.

Another great gain by catheterization of the ureters is the material aid obtained in the differential diagnosis, not only between the two kidneys, but between one or both and the bladder.

To illustrate I will briefly relate the history of a man, aged 39, who was sent to me as a case of tuberculous cystitis. That there was a cystitis was proven by the presence of blood and pus in the urine, the frequency of micturition which occurred about every 30 to 90 minutes, night and day, and by the pain that immediately followed the act. That it was tuberculous was shown by the constant presence in the urine of tubercle bacilli.

A cystoscopic examination revealed a bladder whose walls were hyperæmic but otherwise little altered from the normal, save at one point on the left side high up, where were seen two small ulcers, with borders just touching at one point and one or two tubercles at the base of the trigone. The view left one with the impression that the bladder was not alone responsible for the condition and that probably the infection was a descending one from one or both kidneys. Four years previously the patient had felt a severe pain in the left kidney, but it never recurred, nor was any feeling of distress felt in the left loin afterwards.

Dr. Campbell found great difficulty in catheterizing the ureters in this case. The patient was unusually sensitive, the bladder was small and bled easily. Success was only achieved under general anæsthesia. The little ulcers seen high up on the left wall were found to mark the entrance to the left ureter, into which a catheter was passed. The right ureteral orifice was so displaced forwards and to the left that the catheter could not be introduced. The bladder was again washed, a catheter passed and the patient returned to bed with the left ureteral catheter in position and allowed to remain for two hours. We then had the urine from the left kidney coming through the ureteral catheter and that from the right passed into the bladder from which it was removed, as it collected, through an ordinary catheter.

On examining these urines the following conditions were found:—

R—Amt. 75 c.c. Acid. Sp. gr. 1025. Yellow. Mucoid matter. 1.7 per cent of urea. A trace of albumen. No sugar. Calcium oxalate. A few pus and blood cells. No tubercle bacilli. L—Amt. 20 c.c. Neutral. Sp. gr. 1008. Pale. Flocculent precipitate. 0.3 per cent of urea. No sugar. Epithelium. A good deal of pus. Pus and blood cells, and tubercle bacilli.

It was now quite clear that the chief disease was in the left kidney, that the disease was tuberculous, and that the kidney was functionally of little value. It was also demonstrated that the right kidney was functionally active, was sufficient alone to keep the blood at the normal density; in fact that the man was really living with his right kidney. It is obvious that any error, the result of admixture, would improve the showing. No evidence of tubercle could be found in any other organ. Nephrectomy was performed, no disturbance whatever followed, and he is now, four weeks after operation, going about with a good appetite, gaining in weight and able to hold his urine 2½ to 3½ hours, without the slightest discomfort. The last examination of the urine failed to find any tubercle bacilli. At the operation the ureter was felt as a tense, tight cord. This shortening due to the changes in the ureteral walls had elevated the left side of the trigone, thus changing the posi- of the ureteral opening, which made the operation of catheterization so difficult. Hurry Fenwick has described a similar condition. The kidney was excavated at both poles by tuberculous abscess cavities, and the central portion was occupied by large masses of cheesy material. Without ureteral catheterization it could not have been determined definitely that the bacilli were of renal origin, or if so, from which side, with sufficient certainty to warrant nephrectomy.

In another case, male;—pain felt in the left side. The urine contained pus, no blood, and there was a history suggesting tuberculous epididymitis. A cystoscopic examination was made and the ureters catheterized with the following results. About the left ureter was a small ulcer, and the urine coming from it could be seen to be more turbid than that from its fellow.

Right.—Clear mucous sediment. Sp. gr. 1009. Yellow. Alkaline. 2 per cent of urea. A few blood and epithelium cells. No bacilli. Left.—Turbid purulent sediment. Sp. gr. 1004. Very alkaline. .25 per cent of urea. Blood and pus in quantities. Tubercle bacilli present.

A tuberculous disease of the left kidney was demonstrated and the kidney was removed. It was found to be little more than a big pus

sac, very little secreting tissue remaining. From the operation the man recovered nicely without any disturbance in the function of the right kidney and without any evidence of renal inefficiency. Six months later he died of miliary tuberculosis.

It need only be mentioned that in examining for renal calculi, the confirmatory evidence of blood from one kidney alone is of considerable value in interpreting the radiograph.

When there is sufficient evidence of disease in one kidney to call for its removal, it must be determined that the other kidney is not only present and free from active disease, but that it is able to do the work usually done by two.

Several tests may be applied to determine this point. One of the most reliable is the specfic gravity taken, with proper precautions as to amount of liquids consumed, and on more than one occasion.

The induction of renal glycosuria, based upon the discovery of von Mehring is of value as an indication of renal efficiency, but we have not found it always trustworthy. This I quite think may have been due to faulty technique particularly in the preparation of the solution. After a subcutaneous injection of 1 to 1.5 mg. of phloridzin the healthy kidney excretes urine containing sugar after 15 or 20 minutes, whereas a sugar reaction is shown much later on or not at all by the diseased kidney. It is of confirmatory value, but speaking from a very limited experience we would not be inclined to place unlimited confidence in it.

Cryoscopy of the urine and of the blood as an indication of renal efficiency has been brought prominently before the profession by Kümmell. Many clinicians, particularly on the Continent, have made use of this test, and with somewhat varying results. I obtained the Beckman apparatus for determining the freezing point, seven years ago, and since then it has been used more or less in the Montreal General Hospital. Some of you may remember that three or four years ago Dr. Turner reported the results obtained in a series of, I think, one hundred cases. The technical difficulties in its use became at once apparent, and I am satisfied account in part at least for the discrepancies that have occurred and the widely differing estimates that have been placed upon its value. Dr. Campbell has used it in a number of cases and with such care and precision that his results have been uniform and of value. Solutions freeze at a temperature lower than their solvent, and equality in osmotic pressure may be inferred directly from the identity of the freezing points. I cannot outline the principles of this test better than by quoting from a recent article in *Surgery, Gynecology, and Obstetrics* by Kümmell.

He says:—"The idea on which the method is based is that the function of the kidney must be considered as one of osmosis, or in other words, that the work of the kidney may be calculated from the product of the gland, i.e. from the urine and its source, the blood, or rather the blood serum, and that these two fluids, the solvent of which is water, are subject to the law of osmosis. By osmosis we understand the changing relations between two chemically similar solutions of different concentrations, which have for their purpose the equalization of these differences of concentration. The equalization of the difference of osmotic pressure between the blood, i.e. the serum and the urine takes place in the kidney. By virtue of its two antagonistic functions—the secretory activity of the glomeruli and the resorptive power of the convoluted tubes—the kidney, aiming in two directions, undertakes the regulation by the differences in tension, which are constantly being influenced by the metabolism, the heart's action, etc.

"This ingenious theory, which is built on Van't Hoff's teachings of osmotic pressure, although not new, was expounded by A. von Koryani, to whom the honour of having created a new method of examination in applied medicine is due. Koranyi found, as had already been shown by others in the physiological laboratory, that in man there is a marked constancy in the osmotic concentration of the blood while the kidney function remains normal, and that, on the other hand, there is an increased concentration of the blood if there is kidney disease. He found, further, that with the increase of the osmotic concentration of the blood there was a corresponding decrease in the osmotic pressure of the urine. Everything was interpreted from the premises that while the kidney function is normal, all nitrogen-containing molecules will be excreted by the kidney, while if there be a disturbed kidney function a retention of nitrogenous compounds in the blood will occur."

We have practised cryoscopy of the blood in only a few instances. Cryoscopy of the urine we have found to be a valuable confirmatory sign, generally agreeing very closely with the indications derived from specific gravity and the percentage of urea, although the presence of albumen does not alter the freezing point to the same extent as it changes the specific gravity. A normal freezing point of the blood in a patient with one useless kidney would seem to indicate definitely that the other kidney had normal functional power.

The same information regarding the quantity of inorganic matter present in the urine, especially of the salts, may be determined by estimating the electrical conductivity. Reinger, Gebbert and Schall have constructed a convenient apparatus for this purpose. It is especially

useful when we have only small quantities of urine to work with, say 1 to 2 c.c.

In one young man 30 years of age, Dr. Campbell was able to show that both kidneys were diseased and contained tubercle bacilli. A very satisfactory result was obtained in a young woman 29 years of age, who came to Canada two months before admission to Hospital. She had suffered from backache for 7 weeks, and been unable to work for 3 weeks. The pain, always relieved by rest, had never been severe.

She was emaciated and presented in the right loin a mass continuous with the liver. Her temperature was normal and her pulse 132. The urine from the left kidney was normal save for a trace of albumen. The catheter could not be made to enter the right ureter, the orifice of which was surrounded by an ulcer. From its opening, however, could be seen issuing spurts of turbid urine, increased by pressure over the mass in the right side. It was removed from the bladder for analysis by catheter.

Phloridzin 1 mg. was given subcutaneously with the following result: Right:—Acid. Sp. gr. 1015. Urea 2 per cent. Albumen. No sugar. A few pus cells. No tubercle bacilli. Left:—Acid. Urea 2.25 per cent. A trace of albumen. Sugar present. A few pus and blood cells. Sufficient urine was not obtained from the left side from which to get the specific gravity. The high specific gravity on the right side was, in part, due to the pus present.

A diagnosis of pyonephrosis was thus demonstrated. The presence of a grayish ulcer at the right ureteral opening in the bladder made it highly probable that the condition was a tuberculous pyonephrosis and nephritis, although only one or two doubtful bacilli had been found in the urine. The left kidney being normal, and the right kidney being of little value, nephrectomy was advised and performed. The diagnosis of tuberculous pyonephrosis was confirmed. The patient did extremely well, there being no change in the quantity of urine excreted even during the first twenty-four hours after the operation. The albumen disappeared from the urine almost immediately. A subsequent examination showed the ulcer in the bladder completely healed.

In the following case we were called upon to make a most careful estimate of the patient's ability to undergo a major operation. A man 61 years of age presented a tumour in the left loin the size of a child's head. It was moveable, smooth, not tender, and apparently associated with the kidney. It was said to have been present only about three months and had been growing rapidly. The patient stated that, some years before, he had met with a coaching accident in Milan and

injured his left side and had passed blood in his urine for several days afterwards. During the past three months blood had appeared in the urine from time to time in sufficient quantity to be easily recognized macroscopically. The rapid growth, the great size of the tumour, its mobility and the appearance from time to time of hæmaturia led to a diagnosis of tumour associated with the kidney, possibly malignant and probably a hypernephroma. The man was in delicate health with markedly sclerosed arteries, and a very weak irregular heart action. He had consulted several physicians at home and in the United States, all of whom had made clear to him the gravity of an operation in a man of his years, and he came to Montreal very anxious to have the tumour removed, if possible, and willing to take any ordinary hazard. On catheterizing the ureters the one in the left side failed to deliver any urine until the catheter was introduced to the renal pelvis when 2 c.c. of clear yellow fluid coming in drops, not spurts, was secured in 15 minutes, while the ureter on the right side delivered 10 c.c. in spurts in the same time. In all about 50 c.c. was secured from the right and 10 from the left. On examining the urines the following results were obtained:—Right.—Amt. 50 c.c. Sp. gr. 1014. Reaction acid. Colour pale. Urea .7 per cent. Trace of albumen. No sugar. Freezing point 1.15. Left.—10 c.c. Sp. gr. 1008. Alkaline. Darker. Urea .1 percent. Large quantity of albumen. No sugar. Freezing point 0.3.

Miscroscopically a few traumatic blood discs were found in both sides. It was thus seen that the left kidney was secreting little or nothing. What little there was in the pelvis of the left kidney had few of the characters of urine. It was evident that the right kidney was functionally good and in fact that the man was already living with his right kidney alone. Therefore, if the kidney was removed one would have nothing to fear of renal insufficiency. Nephrectomy was performed. The diagnosis was confirmed. The patient made a perfectly smooth recovery. The tumour proved to be a carcinomatous growth, a true Grawitz tumour. The recurring hæmorrhages were due to the perforation of the renal pelvis at one point and the projection in of a portion of the tumour.

In the following case the value of catheterization as a therapeutic as well as a diagnostic agent is well illustrated. A lady, 60 years of age, had for several years recurring attacks of severe renal colic in the left side, the attacks being sufficiently severe to require rather large doses of morphia for their relief. She was admitted to the Hospital with a view to having the stone removed from the left kidney. An attempt

to catheterize the ureters was unsuccessful, and the patient found the operation so disagreeable, and protested so strongly against a second attempt being made, and the diagnosis seemed so clear that nephrotomy was performed. The kidney was found surrounded by a dense mass of inflammatory tissue and adhesions. On an attempt being made to clear the surface of the kidney the hæmorrhage was profuse. On opening the kidney the pelvis was found to contain a large quantity of phosphatic debris, which was washed away as carefully as could be. It was not possible to pass a catheter down the ureter into the bladder. The inflammatory adhesions were so numerous and dense that one could not outline with anything like certainty the confines of the kidney, the pelvis or the upper part of the ureter. Two cysts of considerable size were evacuated. The patient did well, but urine continued to flow from the wound in the back. It was thought quite possible that the ureter might be blocked by phosphatic debris. A catheter was passed through the bladder and left ureter to the pelvis of the kidney, and under ether the wound was reopened, and considerable quantity of phosphatic sand was washed away. After this operation the urine continued to come through the back in such quantities that it was evident that very little passed *per via naturalis*. This view was borne out by the recurrence of symptoms of colic and the presence of phosphatic gravel in the bladder. In a few days very little urine was excreted from either kidney and it was feared that the patient would succumb to anuria. Two specimens were collected, one from the bladder and one from the back. Very little urine came from the right kidney through the bladder, apparently because of obstruction in the right ureter.

Right.—Turbid. Quantity too small for sp. gr. Albumen. Urea, 2 per cent. Freezing pt. .78. Left.—Turbid. Sp. gr. 1008. Trace. Urea 1 per cent. Freezing point .24.

Pus present in both specimens. That night no urine came from the bladder. Both ureters were now catheterized, and warm mild antiseptics used to wash out the pelvis of the right kidney. The patient's condition immediately improved, and the right kidney excreted 12½ ounces of urine in the following 24 hours, the quantity gradually increasing to normal. For four weeks matters continued in this state when the patient was again seized with chilly sensations and rise in temperature. The right pelvis was again washed out, after which the temperature became normal. At the end of another week another cessation of urine from the bladder occurred. The catheter on this occasion struck an obstruction about 2 inches up the ureter on the right side

which was gradually overcome with evacuation of a quantity of pus. The pelvis and ureters were re-washed and no further trouble occurred. Large quantities of water were given by the mouth. An examination of separate urines showed slight difference in favour of the left kidney which all the time was excreting through the wound. It was quite clear that both kidneys were functionally impaired, and that the two were required to keep the blood of the normal density:—

Right.—Sp. gr. 1006. Clear. Floc. present. Neutral or slightly acid. No albumen. Urea 1.3 per cent. Left.—Sp. gr. 1006. Clear. Floc. present. Ditto. Trace of albumen. Urea, 1.3 per cent. A few pus cells on both sides.

Nephrectomy was therefore considered inadvisable and an expectant policy determined upon. She did well, gaining in weight and health generally for four months. The escape of the urine of the left kidney through the wound continued.

A further examination at this time showed:—

Right.—Clear. Sp. gr. 1015. Acid. No albumen. Freezing point 1.05. Left.—Pale. Sp. gr. about 1005. Alkali. Albumen present. Freezing point .6. Pus present.

It was thus evident that, whatever had been the case before, the left kidney was now doing but little work. The annoyance from the constantly escaping urine from the wound in the back was very great. It seemed impossible to get the left ureter free from recurring blocking with phosphatic debris, and the kidney was therefore removed. The operation was performed, and without the slightest disturbance to the urinary balance.

Reasoning from less fortunate cases it seems probable that on two occasions the washing out of the pelvis warded off an acute pyelitis if not uræmia.

The following is a very interesting example of the conservative influence of cystoscopic examinations. A man was brought to the Hospital with a history of a very severe renal colic persisting almost without interruption for 72 hours. During that time he had been under the influence of morphia and chloroform the greater part of the time, both night and day. The pain had all the characteristics of a renal colic on the right side. The pain occasionally passed down into the right thigh and right testicle. During a forced inspiration the lower pole of the right kidney could be palpated, and was found to be extremely tender. There was no special tenderness along the course of the ureter. On examining per rectum the tenderness on the right side was so great

as to suggest the possibility of the condition being one of a pelvic appendicitis.

In looking into the bladder with a cystoscope a stone was seen occupying the right ureteral orifice, and when the point of the catheter was brought against it he would cry out with pain. He was put back to bed and given moderately large doses of morphine and copious draughts of water to drink. For some hours after the examination the pain was pretty severe, and then disappeared and did not return while he was at the Hospital. Before leaving, the bladder was examined again, and the right ureteral orifice was found empty. The edges were swollen and pouting and the mucosa around ecchymosed, a complete picture of the effects of traumatism. The stone could not be seen and although the man had been warned to be on the watch for it, I think it must have escaped during the time that he was pretty thoroughly under the influence of morphia.

Other instances illustrating the conservative influence of ureteral catheterization are seen in two or three cases that Dr. Campbell has examined where there was reason to suspect a calculus. In one instance I may say that an exploratory incision in the right kidney had been determined upon. On catheterizing the ureter, both sides were found alike and normal.

Any variation between the two sides is a deviation from the normal as taught by Casper. The urine from the two kidneys in health is similar in all its characteristics, in acidity, specific gravity, colour, freezing point, electrical conductivity, and the two kidneys have equal power to excrete methyline blue, indigo-carmine or phloridzine.

In the three cases in which renal calculi and renal disease were excluded as the result of examination of the separate urines, the subsequent history has confirmed the findings.

The cases of tuberculous cystitis associated with renal tuberculosis that I have reported confirm the views so ably advocated by Rovsing that in the majority of cases the kidney precedes the bladder infection. The latter is generally a descending lesion. The little ulcer so constantly found around the vesical orifice of the ureter is an indication of the side involved, and this without any exception, in the cases that I have observed. The thickening and shortening of the ureter noted by Hurry Fenwick and so conspicuously present in one of my cases is probably, as taught by Adami and the German School, a secondary and ascending infection from the ulcer at the vesical orifice of the ureter; the infection being carried up very largely by the lymphatics.

After a tuberculous kidney is removed, not only the system and bladder are saved from further infection, but the remaining kidney

is relieved. It has fewer and less toxines to excrete. The albumen, if present, disappears, and it does its work without that handicap.

THE TREATMENT OF RHEUMATISM AT CALEDONIA SPRINGS.

BY

E. S. HARDING, B.A., M.D.

Caledonia Springs is situated five miles from the Ottawa river on the line of the Canadian Pacific Railway, and almost half way between Ottawa and Montreal. Unlike most of the spring resorts in different countries, no town has grown up in the neighbourhood, and this has probably been altogether due to the monopoly of ownership of the springs, and to the lack of natural attraction about the locality. The country about is flat and uninteresting—an almost level plain interspersed with meadows, bogs and woods. The soil is almost pure clay for some distance around, and the roads of a certain smoothness in dry weather, become slippery, soft and adhesive under the influence of rain. The streams running to the Ottawa river are sluggish and are discoloured by their windings through fields of clay and dark bogs of peat. In spring under the influence of the freshets, the streams quickly overflow, and large tracts are converted into shallow lakes. The wooded slopes of the Laurentians, rising boldly on the north side of the Ottawa relieve the landscape of its flatness, and the beauty of the river itself at this point is well worth the drive of five miles.

The climate is that of the Ottawa valley in general, being slightly more humid than the surrounding places on account of the stretch of impervious clay. The temperature is about two degrees below that of Montreal, and the nights, even in hot weather, are usually delightfully cool. Breezes spring up quickly but are seldom violent and do a great deal to temper the heat of a hot summer day. The thunder storms are not heavy nor frequent.

The character of the geological formation along the Ottawa valley seems to be favourable to mineral springs, as a chain of these exists along the course of the stream. The better known are at Eastman and Casselman near Ottawa, Plantagenet and Caledonia (several springs) lower down, and at Maisonneuve, and Varennes, near Montreal. Although differing greatly in ingredients they are all fairly strong in mineral salts.

Caledonia Springs have been known for their curative properties since 1803. A hotel was in existence for the accommodation of health-seek-

ing pilgrims as early as 1830, and probably even before. A good sized hotel was built in 1836 and the reputation of the waters even at that time extended through Eastern Canada and the Northern New England States. Since that time the history of the place tells of regular advancement interspersed with various important events—horse races, walking contests, miraculous cures and hotel fires. Many interesting stories are told of the old days. People are still living who have known the place since 1840, and many have made almost annual pilgrimages for 30 or 40 years. Until about 10 years ago, the trip from Montreal was an arduous undertaking. First, by train to Lachine, then by steamer through Lake St. Louis and Lake of Two Mountains to Carillon, again a ride on the cars over the famous narrow gauge to Grenville, thence by boat to L'Original and finally by means of a stage-coach ride of 14 miles the destination was reached. With such a trip on perhaps a rainy day, the faithful rheumatic pilgrim must have believed great things of Mecca. Now the main line of the Canadian Pacific Railway runs through the property and ten trains a day with modern telephone and mail service make it almost a suburb of the city.

At Caledonia Springs there are four distinct and well marked springs constantly flowing. These differ in amount of flow, mineral ingredients and contained gases. Three rise within an area of fifty yards and the fourth is about two miles distant. Some salts are common to all and the uniform temperature of the water is 45° F.—said to be the average temperature of the locality.

The distant spring is known as the Duncan. The water is of the alkaline—saline—carbonated group. It is much the strongest in the amount of chlorides contained and especially sodium chloride. The action of this water is strongly aperient and its use is confined entirely to cases of constipation. The taste is rather bitter, but this is lost when taken hot.

The Gas Spring is also an alkaline-saline water and derives its name from the presence of carbonic acid gas. The carbonates of magnesium, calcium and sodium are present. In taste it is most pleasant. Its therapeutic use is derived mostly from the presence of carbonic acid and the carbonates, making it of value in gastric conditions.

The Saline Spring is a mild saline-alkaline and is the most popular of the waters, being the one largely bottled and shipped. It has an agreeable taste, although, to the newcomer, the faint odour of hydrogen sulphide is noticeable. The flow formerly exceeded 15 gallons a minute, but the outlet having been raised it is now only 7 gallons a minute.

Therapeutically, it is the general purpose water, but is most useful in uric acid conditions.

The Sulphur or White Sulphur is alkaline-saline, sulphated and sulphuretted. Its taste is at first rather strong on account of the gas, but one soon learns to like it. It contains 1 cubic inch of H_2S in a gallon. It owes its therapeutical properties to the presence of the sulphur and is largely used in rheumatism. If taken in large quantities at first, its action is quite severe, often causing vomiting, headache, and constipation.

One feature of these waters, sufficient in itself to make them popular, is the absolutely pleasant taste compared with most mineral waters. Visitors who have been at many springs, praise this quality very highly.

Besides the four springs, there is an Artesian well, 175 feet deep, from which flows the strong alkaline sulphur water, used in the baths. No complete analysis of this water has been made.

In speaking of the action of the Caledonia mineral waters, it will be as well to pass in review the various salts which they contain. Dr. James K. Cook, in his work on "Mineral Waters of the United States," succinctly says that the "most frequent and most important component in all mineral springs is indisputably water." It may seem superfluous to mention the therapeutical action of water, but if there is not an ignorance of its properties, there is undeniably a great lack of appreciation of its merits. I merely mention its action as a diuretic and its power to increase peristalsis when taken cold.

The strongest mineral constituents in the Caledonia waters are the chlorides, the first of which is sodium chloride. The physiological actions of these salts which I wish to emphasize are:—the function of regulating the absorption of body fluids and of exudates; the action in the stomach where they combine with lactic acid, liberating hydrochloric acid, thus aiding digestion and increasing the amount of pepsin; the action in the secreting glands of the gastro-intestinal tract increasing the flow of gastric juice, bile, pancreatic juice, and intestinal fluid, promoting appetite, aiding digestion and helping exudation. Therapeutically they are of value in gastric, hepatic and intestinal disorders and especially in atonic dyspepsia.

The most important constituents of the waters, in relation to rheumatism are probably the alkaline carbonates, which are present as the salts of magnesium, calcium and sodium. Their action is important. Given before meals the flow of gastric juice is excited, given after meals the acidity of the stomach is neutralized. They are quickly absorbed and render the blood more alkaline. They are diuretic, acting directly

on the renal epithlium. They are quickly excreted in the urine, rendering it alkaline, and thus increasing its power of holding uric acid in solution. They are recommended in acid dyspepsia, with eructations, pyrosis and flatulence, also in fever, rheumatism, gout, vesical irritation, gastro-intestinal catarrh, engorgement of the portal system, and conditions of uric acid, gravel, and calculi.

The bromides and iodides of sodium and potassium are present in the waters in small quantities. Iodides are said to be active as alteratives in mineral waters even in very small quantites. Alumina and silica are practically inactive. The salts of soda have no action on the heart and do not increase tissue waste.

The salts of potassium are slightly depressant to heart and muscles. They lessen blood pressure, lower temperature and promote excretion of inflammatory products. Both salts tend to dissolve mucous secretions and exudations. Calcium chloride promotes secretion of urine, perspiration and mucus.

Of the gaseous constituents, carburetted hydrogen is non-medicinal Carbonic acid gas promotes flow of saliva, allays nausea and gastric irritation, and aids digestion. It tends to render the fluids of the body alkaline, and promotes diuresis. It is very sedative to the stomach. Hydrogen sulphide has a doubtful action on the system. Dr. Moorman, of Virginia White Sulphur Springs, claims it is an alterative equal to mercury. Empirically it has attained a wide reputation in rheumatism, gout, hepatic congestion and pelvic disorders.

Zatloukal, of Carlsbad, sums up the action of alkaline-carbonated waters on the system as follows:—They are purgative, causing a loose movement; are diuretic, rendering the urine alkaline. They cause an increase of gastric juice, thereby dissolving mucus, accelerating the digestion and increasing the appetite. The alkalinity of the blood is increased, facilitating assimilation. The free acids occurring in the stomach are neutralized, aiding to dissolve and liquefy the thick and indurated mucus which results from imperfect and slow digestion. The mucus and irritating fæcal matters retained in the intestines are removed. Circulation in the portal system, and in the lymphatic system of the abdomen, are stimulated and by this activity the diseased matters are dissolved and carried out of the system. The secretion of bile is augmented and diluted, promoting solution of gall-stones and their subsequent passage. He further claims that there is a separation and diminution of sugar in diabetes. Taken warm, they stimulate the circulation of the blood, and secretion and absorption are hastened. Taken cold they are relaxing and increase peristalsis. The effects are greater on an empty stomach.

Regarding the advantage of rendering the urine alkaline in cases of rheumatism, Brissel's experiments showed that normal urine was fully saturated with uric acid, and on being cooled to 60 F. deposited about half of it. But after taking warm alkaline water the urine contained much larger quantities of uric acid and on being cooled to 60 F. did not deposit any, but was capable of holding still more in solution. He showed that this urine would dissolve three times as much uric acid as normal urine. Some additional actions might be mentioned that have been observed at Caledonia Springs. It is remarkable how quickly the habit is formed of drinking large quantities of the waters and people frequently have to be restrained. There is undoubtedly an increased thirst acquired by drinking these waters—paradoxical as it may seem. This is accounted for by the salty taste and the slight inhibition of the flow of saliva by the carbonates; further, the depleting action of watery stools and the diaphoresis of the hot baths create a systemic demand for fluid; a reflex stimulus is also present from the cool refreshing taste of the water and the constant example set by others. An increased appetite is almost universal from the first day. A disinclination for activity or energy is common and rather detrimental. The purgative action follows the drinking of the hot water in the morning, resulting in from one to three pappy, usually watery, evacuations before or soon after breakfast. During the rest of the day there is no movement. The diuretic effect is variable, depending upon the amount of watery excretion by the bowels and skin. It is most marked towards evening after drinking the cold waters. An action of the Caledonia waters that I have not seen commented upon in reports from other springs is that upon the alcoholic. There is a marked inhibition of the taste for liquor.

Untoward or toxic actions of the waters are occasionally noticed, the principal of which are headache, malaise, constipation, œdema and gastro-enteritis. They are usually caused by taking the sulphur water too soon or in too large quantities, sometimes aided by a too hot initial bath. The person feels a dull depressing headache with malaise, loss of appetite, furred tongue, feeling of oppression, and bloating. Where there is also constipation, œdema may be quite extensive, showing early in the face. The condition is sometimes refractory to treatment. These symptoms, however, are practically never seen where the rules of treatment are carefully followed, and I do not remember of seeing them except at the beginning of a course.

Gastro-enteritis at the beginning or during treatment is far too common, but its cause is not always apparent. The attack is frequently

quite severe, and at times almost seems epidemic, but is seldom refractory to treatment. The possible causes are:—indiscretions in diet (both in quantity and quality), the drinking of cold water in too large quantities or too soon after meals, sudden changes in climatic conditions, or the sudden liberation of quantities of uric acid in the system by the alkaline waters and hot baths without sufficient excretion. A mild attack early in treatment seemed to have beneficial after results. A curious result sometimes noticed on drinking the waters is an obstinate constipation. To avoid this a free action must be obtained at the beginning of treatment.

The other important agent in the treatment of rheumatism with mineral waters is the hot bath. The absorption of mineral ingredients in the waters of the baths is generally conceded to be very slight, the therapeutic value being due to the action on the skin and on the circulation. On entering a bath from 95° to 106° F. the first feeling is depression, soon followed by a sense of comfort and relaxation. From mechanical pressure and stimulation the blood is first driven to the internal organs. Then follows increased respiration, quickened pulse, rise of the body temperature, lowering of blood pressure and hyperemia of the skin. The chlorides and carbonates tend to soften the skin and stimulate it, dissolving at the same time the secretions of the sebaceous and sweat glands, removing the adherent epidermic scales and the obstructing masses of secretions. The fatty exudations are saponified, the ducts opened, the capillaries flushed and the glands stimulated. The increased pulse and respiration mean increased metabolism throughout the body, and there is an increased excretion of gaseous material. Brissel has shown that the douche bath has greater effect than a plain one, the changing force of water alternately contracting and dilating the superficial vessels. The same writer has demonstrated that the excretion of urea and uric acid in the urine was greatly increased by these baths.

In some experiments in hot baths, made at the Springs, in which the water was gradually heated from 100° to 106° F. the pulse increased from 66 to 140, the respiration from 14 to 19, and the temperature (taken by mouth) from 98° to 102° F. This increase of temperature is interesting since Dr. Haig claims that fever renders the blood more acid and deposits uric acid in the tissue, while the result of baths shows an opposite effect as regards the excretion of uric acid in the urine. The temperature returns to normal within a few minutes after the bath, but the accelerated heart action may continue for an hour or two. The degree of perspiration induced by hot baths

differs greatly with different individuals—some finding it difficult to induce even a mild diaphoresis. I have seldom, if ever, however, seen this in a rheumatic patient.

In endeavouring to induce a diaphoretic action in the baths various expedients have been found useful. Drinking a glass or two of water while in the bath will start perspiration, and especially if taken hot; gentle massage during the bath, and exercise just before, have the same effect; beginning with a moderate temperature and gradually heating the water is better than entering a hot bath; moist air in the room also makes diaphoresis easier. Of untoward effects of baths, headache is the most common. To overcome this the feet are first submerged in hot water, and during the bath a towel wrung out of cold water is kept applied to the head.

I have never seen a rash or irritation of the skin caused by the baths even under excessive use.

Very little need be said concerning the cold, tepid and warm baths. The cold bath is used a great deal for a tonic and stimulating effect, and in a great many conditions the hot bath is followed by a cold spray or submersion with great benefit. A cold bath should never be given beyond the point at which a quick reaction takes place. Beyond that point there is a feeling of lassitude and a sense of persistent chill which is difficult to throw off. The warm bath is sometimes useful as a hypnotic.

The regime of treatment for those coming year after year to Caledonia Springs, mostly past sufferers from rheumatism, who take the waters for about 2 weeks, is as follows:—

Having risen early, they slowly take while dressing from 2 to 6 glasses of saline water, as hot as possible. A period of half an hour or an hour elapses before breakfast, during which some exercise is taken. Breakfast should be light, if the patient intends to take a bath in the morning. Two hours after breakfast, from 10 to 11 o'clock, is the favourite time for the bath. A glass or two of cold water is usually taken before, or at bath time. The first bath of the course is taken at 95° F. for 15 or 20 minutes. Subsequent baths are taken every other day, or two days out of three, and the water is heated to 100°, or more, if necessary. After the bath the patient goes to his room and lies between blankets, resting there about an hour. This hot pack usually brings forth a copious diaphoresis, starting on the face and gradually including the body, being free enough at times to roll off in drops. It is not exhausting, and the patient frequently drops off into a comfortable doze, and at the end of the time feels rather refreshed. After the flow of

sweat has entirely ceased, the patient rises and takes a rub down with cold water or alcohol in order to close the pores and avoid any danger in subsequently going outdoors. He then rests quietly in his room until lunch time, when he is free to spend the afternoon as he chooses. During a period of baths the softened and opened skin is easily induced to perspire during exercise and considerable care must be taken to avoid all exposure to currents of cool air.

The afternoons are spent resting or taking light exercise in games and other amusements, but all the time possible is spent in the open air. The cold water from the springs is taken as prescribed at intervals of half an hour or more, but not less than two hours after meals. Quantities and intervals differ according to whether the directions are for gas, saline, or sulphur. Dinner is taken at night from 6 to 7.30, not to my mind a good arrangement, but one that is enforced by the dictates of fashion. During the evening music, cards, billiards, bowling, etc., fill in the gap before the early bed hour. Noise and music stop at ten o'clock, and eleven usually sees the house in darkness,—deep slumbers being the order of the night in spite of the reputed power of the gas water to provoke unpleasant dreams. I have always discouraged any drinking of the cold waters in the evening, believing that the gastric heat maintained by the body should not be interfered with after the heavy evening meal. Outdoor exercise, gaiety, freedom from care and a general air of brightness are encouraged. The veranda (the feature of the hotel) is the centre of life and becomes conducive to ready acquaintance and a spirit of camaraderie, but unfortunately the "touch of nature which makes the whole world kin" leads readily to the discussion of common ailments—a topic which should be entirely tabooed. The regular hours, outdoor life, pleasant surroundings and strong hope of cure, play no inconsiderable part in the therapeutic effects.

Before speaking of the treatment of rheumatism, I would first like to mention one or two other conditions in which the Caledonia waters have given good results. Perhaps they are all more or less dependent upon or allied to the uric acid diathesis.

Dyspepsia.—Cases of neurosis of stomach, acid dyspepsia with flatulence, and atonic conditions have given good results. The treatment is rational, consisting of a copious allowance of hot saline in the morning with cold gas water sipped at intervals during the day. A free action of the bowels and brisk exercise are essential. The diet is restricted but liberal, and the baths are tonic in character, that is,—a cold rub down in the morning, or a tepid bath ending in a cold shower.

Catarrh of the Gastric Tract.—I have been surprised how readily these cases generally improve under the influence of the hot saline water. Cold water is restricted or denied, and the sedative baths are ordered. Later a more tonic treatment is advised.

Chronic Constipation.—Hydrotherapy is, I believe, the rational treatment that effects a cure in this condition, and many cases have been successfully treated at the Springs. Temporary results are easily obtained by various expedients, but obstinate cases of chronic constipation are very numerous and very difficult to treat satisfactorily. The treatment I have used at the Springs is as follows:—The patient rises early, takes a cold sponge bath and while dressing drinks from 3 to 6 glasses of hot Duncan water (the strongest saline of the group). This change from hot saline to hot Duncan in the morning is sufficient in moderate cases. After dressing comes some sharp exercise,—a brisk walk, a short run, gymnastics, or an outdoor game. Then one or two glasses of cold saline taken at the spring, followed by a walk and a quiet interval before breakfast. Thus the principal part of the treatment comes before breakfast and a free action of the bowels takes place in the forenoon. Physiologically the action is almost entirely upon the intestines; the hot saline promotes the glandular secretion both of the portal system and of the intestines, at the same time dissolving viscid accumulations of incomplete digestion and of mucus; the cold water taken later stimulates peristalsis and probably the bulk of fluid materially aids; the muscular movements act in the same way by external pressure and stimulation of the walls of the intestines. The appetite increases and a liberal diet is allowed. During the day, exercise, bringing the abdominal muscles into play is recommended, and from 6 to 8 glasses of cold saline are taken. Hot baths are not indicated at the beginning as they tend to lessen peristalsis, but cold tonic baths are useful, especially the shower and douche. Should the first day's treatment not be effectual, it is necessary to give an efficient purgative that night. The severer part of the routine is relaxed as the bowels become regular, and an effort is made to effect regular action under conditions of ordinary life. One patient was under my care who had given up a political life, relinquished a large business, travelled to many resorts, and consulted many authorities seeking relief from chronic constipation, with no permanent results. The condition would return as soon as he took up the routine of business life at his home. In following up the results of some cases I wrote to him and received this reply:—"I may say that during the two weeks I spent at Caledonia Springs, I derived more benefit than during the two months at different times that I spent at Carlsbad."

Chronic Eczema.—Several cases have done well under treatment, but the number has been too small for definite conclusions.

Hepatic Cirrhosis.—Two alcoholic cases came under my notice, in one of which there was general improvement in the symptoms. The other case on arrival presented marked ascites, and on paracentesis being recommended, he promptly left for the city.

Vesical Irritation from Hyperacidity cleared up very quickly under treatment.

Lingual Ulcers.—An interesting case of lingual ulcers in a rheumatic came under observation, in which a previous diagnosis had been made of uric acid origin. They had always proved very resistant to both local and constitutional treatment. Several small ulcers appeared during the early part of the stay, but quickly healed without local application. The cure seemed complete and the condition has not since returned.

Alcoholism.—Patients taking the cure seem to lose the desire for alcoholic drinks. Cases of habitual drinkers carrying away untouched bottles of whiskey are numerous. When acute symptoms have been present, following a more or less prolonged bout the recovery was quick and the weakness soon overcome. One case distinctly failed, but the patient made no effort on his own account, and refused control.

Rheumatism.—The reputation of the Caledonia Springs has been earned almost exclusively from their effect upon rheumatism. The sceptic or the ultra-conservative practitioner should spend one day on the veranda gleaning the histories of treatment from the many habituées of the place to become convinced of a certain efficacy of the waters. To the scoffers it can only be said that they refuse to see results from the patients' point of view and decry the treatment because there is exaggeration in the advertisements, and a tendency for patients to elect their own treatment without authority from their medical advisers. These are two evils, yet they should not lead to a condemnation of Spring resorts, nor obscure the benefits of such places. I have tried to show that there is no faith cure in the use of mineral waters and baths, but that results are obtained from a definite physiological action. The practical thing is for physicians to become acquainted with the action of various mineral springs and make a judicious recommendation to their patients.

It is impossible in this paper to discuss rheumatism and its allied diseases, or attempt classification. Three broad divisions will best suit our purpose viz:—Rheumatism, Arthritis deformans and Gout. Three broad divisions of Rheumatism are also necessary, viz:—articular, mus-

cular, and neuralgic. Dr. Haig, of London, in his book on Uric Acid, states that arthritis is due to the irritant action of uric acid on the fibrous structures of the joints. He says that an attack of rheumatism is dependent upon an increased quantity of urea and uric acid in the system due to lessened alkalinity of the blood—upon this a chill, which lessens the acid excretions of the skin and increases the blood acidity, deposits some uric acid in the fibrous tissues—an injured joint having the preference. The irritation then causes fever and fever causes a still greater degree of acidity and consequently a greater deposit. The cartilages and fibrous tissues of the joints are less vascular and less alkaline than other tissues and consequently are the seats of election. But other fibrous tissues are involved as the great lumbar fascia (lumbago), the sheaths of the great nerve trunks (sciatica), fibrous tissues of the pelvic organs in women, and the fibrous tissues of the heart (pericarditis and endocarditis). It is well to remember this theory of etiology, that acidity added to incomplete oxidation or assimilation is the prominent factor.

Acute Articular Rheumatism or Rheumatic Fever is not very common at the Springs but the cases that have come under my observation have made good recoveries. As these cases generally respond satisfactorily to treatment with salicylates, alkalines and rest in hospital and private practice, a long series of cases would be necessary to demonstrate that better results can be obtained by treatment at the Springs. I believe this would be shown by fewer complications, quicker recoveries and better after-results. Most authorities agree that the heart complications are fewer when the system is alkalinized early in the disease. One feature was thoroughly impressed upon me in treating these cases, and that was the greater comfort of the patients. Inflamed rheumatic joints are painful to move but the patients welcomed the time for their daily bath, and once in the water they were happy. It is surprising with what freedom they would move the joints under water. Hot douches upon the swollen joints were also sedative. Movements and hot douches were encouraged, tending to quicken absorption of the uric acid into the circulation, knowing that the drinking of the alkaline carbonated waters had rendered the blood alkaline enough to take up more of the acid and that the increased diaphoresis, diuresis and purging were sufficient to quickly eliminate it. In fact, large quantities of the mineral waters internally are necessary for secretion and excretion of the increased amount of final products resulting from the increased metabolism caused by the baths. At the termination of the bath I found it added comfort to the patient in cases of hyperpyrexia to

cool the water down until it had an antipyretic effect. A few hours of comfort and often a refreshing sleep followed the bath. Diaphoresis was encouraged but the patient was given cold sponging at night. Salicylates were only exhibited where there was constant hyperpyrexia or excessive pain causing insomnia. As the fever subsided, the patient was wheeled out into the sun and slight exercise encouraged as early as possible.

Sub-acute and Chronic-Articular Rheumatism brings many patients to the Springs with painful, stiff or swollen joints. The treatment consists of the morning hot saline, sulphur water during the day, temperance in eating, hot baths and physical exercise. In the baths, massage and hot sprays were used and movement encouraged. Under the influence of the baths the stiffened joints relax and much more movement is possible. These patients are encouraged to take as much exercise as possible, unless specially contra-indicated. Nearly all cases soon show improvement and the percentage of cures is large. Advanced cases with osseous proliferation or structural disintegration could, of course, only be ameliorated. A large number of chronic cases return annually for a fortnight's stay, claiming that the course of treatment kept them free from attacks during the winter.

Chronic Muscular Rheumatism presents similar features to the last and the treatment is the same. In the absence of marked structural change one expects much quicker results, but one is sometimes disappointed as some of these cases seem very resistant to treatment.

Neuralgic Rheumatism.—Sciatica, of course, is the most common form of this, but I had several cases of brachial neuralgia where the pain was confined to the shoulder. In these cases there were usually no tender points on pressure, no loss of muscular power and no swelling of the joint, while in some there were no other symptoms of rheumatism. In treatment, I found them as stubborn as sciatica. Hot baths gave temporary but not permanent relief, and often the pain seemed to be increased. Tonic baths were then tried with better success and the best results were obtained by hot sprays on the affected part, followed by a cold shower, or by alternating hot and cold sprays. Quick results were not obtained in these neuralgic conditions but the final results were good. As far as I have heard from most of the cases the cures were complete, sometimes, however, not until after they had left the Springs. Exercise was encouraged, and a general building-up or strengthening treatment.

Arthritis Deformans.—One interesting case was under my care, and I am sorry not to be able to give full particulars, but will mention two

noticeable results. Before coming to the Springs the patient was practically confined to the house, but within a month enjoyed taking comparatively long walks. On returning home for a visit, a retrogression was apparent, being again confined to the house on account of the pain experienced in walking and there was a marked depression of spirits. Recovery to the former improved condition was almost immediate on return to the Springs. After 12 weeks stay, the patient was able to flex fingers to the palm, a thing which had been before impossible. It will be interesting to watch the final results.

Gout.—I have had little or no experience with true gout at the Springs. Undoubtedly the condition would be benefited.

It has been my policy at the Springs, to give little or no drug treatment in conjunction with the waters, believing that it is unnecessary and even undesirable. The aim of treatment has been (1) to improve the condition of the digestive tract, that assimilation may be perfect. (2) To render the blood and urine alkaline, that the power of dissolving uric acid and incomplete products of metabolism may be as great as possible. (3) To stimulate the emunctories and increase excretion. (4) To encourage a good appetite on a liberal but restricted diet. (4) To compel the use of the muscular system by exercise. (6) To improve the mental tone by bright surroundings. As regards diet, the patient is forbidden alcohol, sweets, very rich foods, and any excess of fresh meat. As regards exercise, the grounds are well supplied with the apparatus for games of all kinds, from rope quoits to golf, and activity becomes much greater when under the stimulus of a competition, and the excitement of a contest is stimulating.

One drawback to successful treatment of chronic cases was the rooted belief of people that they should not stay more than two weeks. I recently read with pleasure an article by Dr. F. L. Satterlee, of New York, on Rheumatic Poison and its Treatment. Allow me to quote from his paper. "The diet lists for rheumatic patients, promulgated for many years without much correction, are in my judgment entirely false and far too restrictive.....My experience shows that it is only necessary to cut out of the diet red meats and alcohol, and to reduce to a minimum articles containing sugar.....Exercise is needed not only to increase the oxidation of waste products, but also to promote their elimination.....Let the patients throw away their crutches and canes and strive to use every muscle until it works normally." Again, he says: "I must emphatically condemn the use of certain drugs and medicines which have appeared for many years in our text-books as specifics.....(Use) the alkaline treatment which is as old as medicine

itself and in which we not only have a very successful method of treatment but good reasons why it is the best that can be adopted."

In closing I wish to say a word about the future of the Caledonia Springs. They have recently come into possession of the Canadian Pacific Railway Company, and probably no better fate could have befallen them. These springs are favourable for the establishment of a large resort in which to "take the waters" and many benefits could be derived in making them popular. Undoubtedly, they rival in many qualities some of the well-known European resorts. It is no slight advantage to have near at hand a suitable place where cases requiring treatment at such resorts can be confidently sent. To gain the confidence of the medical profession it is necessary that the therapeutical or medical claims should receive every consideration. The Springs are primarily a resort for health and it is to be sincerely hoped that the Company will develop them with this in view. In one way they have already done this by opening a hotel for the winter treatment of cases—a season of the year when rheumatic affections are so common. Establishing a second hotel with lower rates will also bring the means of treatment to a larger class. A word of praise should be given the present manager, who has for years been in touch with the records of the Springs and who appreciates and considers first the comfort and care of the guests who are there for their health. In the past, guests have been free to use the baths and waters according to their own judgment or according to the abundant advice which is so freely given by friends. This has been detrimental to the best interests of the Springs and we hope it will soon be changed, and that all will be under medical supervision. Resorts like this soon draw many who are not seeking relief from ailments, but merely distraction or amusements and some tact is necessary to fuse the different elements. However, no one disputes that the patient has first rights, and I feel sure that his interests will always predominate.

CYSTOPEXY FOR FALLING OF THE BLADDER.

BY

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Among the many causes of cystitis there is one which has received very little attention in the text books, namely, cystocele or falling of the bladder. This condition generally accompanies falling of the uterus, but may occur alone. The cause of cystocele is a difficult labour,

in which the head pushes the bladder before it, although it must be said that it is more frequently due to the too early use of the forceps. With this instrument the head may be dragged down with great force, tearing the bladder away from its attachments to the back of the pubis and to the anterior abdominal wall, to which it is held by the urachus and the peritoneum.

The accident is more liable to occur if the bladder has not been emptied shortly before the passage of the head. The condition of cystocele is best diagnosed while the woman is standing, when a soft round ball will be felt projecting from the front of the vulva under the pubic arch. If there is also prolapse of the uterus, the cervix will be felt just behind it, while back of that again there may be a rectocele. When the woman is placed on her back, on the examining table, the round mass will become smaller but will not disappear altogether unless the bladder be emptied with a catheter. When the latter is introduced, instead of going upwards and forwards behind the pubic arch, it must be turned downwards and backwards in order to enter the bladder. Moreover, even if the woman has just passed water some more may still be obtained, this being residual urine. The woman herself when complaining of this mass almost always thinks that it is the womb, although I have occasionally found that the uterus was in good position, so that her diagnosis is sometimes misleading.

The following description of the symptoms is taken from one of the latest text books, and is all the notice of this condition that I have been able to find therein. When the cystocele has become at all marked, dysuria is present, and considerable effort must be employed to empty the bladder. Thus another cause for increasing the cystocele is generated. Complete evacuation of the bladder becomes impossible, a little urine is retained and decomposes; an irritable and inflamed condition ensues at the neck of the bladder, followed by *ardor urinae*. As the cystocele increases in size, the neck of the uterus is pulled upon more and more, and the descent of the whole organ facilitated. Thus it is that, once the prolapse is accompanied by cystocele and rectocele, these conditions become causes for such efforts to empty the bowel and bladder as to still further add to the descent. The condition very much resembles that of retention of urine in the male from enlarged prostate, and is due to the same cause, namely, the presence of residual urine.

The remedy advised in most of the text books is drainage of the bladder by a buttonhole fistula into the vagina. This undoubtedly cures the cystitis by draining from the lowest point, and doing away with residual urine, but as it necessitates the woman staying in bed,

and that she should be constantly lying in cloths and pads saturated with urine, the remedy is almost worse than the disease. And there is no end to it, for as soon as the fistula closes the cystitis returns. A catheter *à demeure* is much preferable, while even passing the catheter two or three times a day, as men with enlarged prostrate do, gives some relief without the discomfort of a fistula. A better thing still is to cure the cystocele, and for this purpose Stoltz's operation on the anterior vaginal wall has been considered the most effective means for the last twenty years. It is not always successful, as the scar or the adjacent weakened tissue, gradually stretches again and allows the bladder to fall. Reynolds, of Boston, devised an operation three years ago, for bringing the separated pelvic fascia together again in the middle line, and Dudley, of Chicago, has invented still another much more complicated one with the same object in view.

A little more than three years ago, the writer proposed the operation of cystopexy or fastening up the bladder to the abdominal wall as a remedy for cases of cystocele, accompanied by falling of the uterus, causing enough discomfort to justify the slight risk of opening the abdomen. His first case was reported in April or May, 1904, and proved entirely successful. It was performed on an elderly woman who had been treated for a long time with medicine and washing out the bladder, without curing her. In her case, being long past the menopause, the uterus was small and there was no prolapse. Since then he has done cystocele, rectocele, and prolapse of a lacerated and retroverted uterus: namely; first, dilatation; second, curetting; third, amputation of the lacerated and hypertrophied cervix; fourth, posterior colporrhaphy or perineorraphy for rectocele following a lacerated perineum; fifth, cystopexy instead of Stoltz's operation; sixth, removal of large, heavy and cystic ovaries; seventh, ventrofixation, requiring altogether from an hour to an hour and ten minutes. As the operation has not received the attention it deserves, judging from the few cases which have been reported by other operators since the writer reported his first case, he now reports this one with the hope that it will be tried by some of the more prominent operators, and if found to be as valuable as he believes, that it may be adopted as a standard method of treating these rather intractable cases of bladder trouble.

The operation is very easy to perform. After the abdomen has been opened rather near the symphysis pubis, the bladder will be seen low down in the pelvis, and must be gently grasped with a bullet forceps, and drawn up as high as it will go without employing any force. Both the peritoneal surfaces on the bladder and on the anterior abdominal

wall are scarified or criss-crossed with a needle until there is slight oozing. A curved needle is then passed through the abdominal wall including all layers except skin and fat, then under the peritoneal and muscular layers of the bladder and out through the peritoneal and muscular layers of the abdominal wall on the other side, bringing after it a cromicized catgut thread, strong enough to last a month. Two or three similar stitches are passed at intervals of half an inch, after which they are firmly but gently tied. This is generally followed by fixation of the uterus about an inch higher upon the abdominal wall, although in one case there was no need for doing it, as the uterus was in good position. Care must be taken not to allow the needle to go through the vesical mucous membrane although there is very little danger of doing this, as the needle can be kept in view all the time as it passes under the transparent peritoneum and muscular layer of the bladder. The larger the area of scarification on the bladder and abdomen the stronger will be the adhesion and the more certain will be the result. No precautions are necessary with regard to emptying the bladder; as a rule the patient can do this without the help of a catheter from the very first.

Case.—Mrs. W. B., aged 53, was sent to the writer by Dr. Pickell, 29th October, 1906, for bladder and womb trouble. She was born in England, began to menstruate at 16, and continued to do so normally until her marriage at 21. She had six children, the last one eighteen years ago. Her first labour was so severe that she had two doctors with her for seven hours, and it was terminated with instruments. She had no miscarriages. She had the menopause at 47. She complains a good deal of bearing down or dragging pains. She is troubled with frequent micturition and sometimes has to pass water every five minutes, having to strain a great deal without passing very much.

On examination, the uterus was found to be retroverted to the second degree. The perineum was not bad enough to cause a rectocele, but there was a marked cystocele which did not go in when lying down. She thought that this round mass was the womb, but the latter did not come out at all. After a week of preparatory treatment her abdomen was opened, and the bladder picked up with a pair of bullet forceps which did not go into the cavity but only through the peritoneum and muscle. After giving a wide and thorough scarification it was attached as above described. Then the retroverted uterus was caught up and attached in the usual manner. The result was very marked. The day after the operation she was holding water for four hours. I have since heard from her physician, who writes under date of 14th

March, that he had called several times to see Mrs. B. but she was out each time. Her husband informed him that she was completely relieved of her long standing complaint, especially the bladder and the old bearing-down pain. He closes by saying: "I think the operation entirely successful."

RUPTURE OF SUBCLAVIAN ARTERY AND BRACHIAL PLEXUS BY DIRECT VIOLENCE.

BY

JAMES BELL, M.D.

D. F., aged eight years and four months, was injured in the following manner on the 5th of January, 1907, while playing in the lumber woods in New Brunswick, where trees were being felled. He was lying face downward with the upper part of his chest upon the rocker of a large logging sleigh when a tree fell, struck the other end of the rocker, and threw him into the air a distance of ten feet. There is no evidence as to how he fell to the ground. He was unconscious for about two hours and was soporose and delirious for the next two or three days. A physician saw him within two hours of the injury and was unable to detect any pulsation anywhere in the arm. The arm was absolutely paralysed from the moment of the blow. On the following day the points of the fingers began to become black, and on the 15th of January, ten days after the accident, when he came to the Royal Victoria Hospital, the forearm was gangrenous, and there was a large patch of ulceration on the back of the arm where a hot water bottle had been applied on his return home after the injury. Sensation was absent up to the line of the shoulder point. There is a good deal of ecchymosis over the front of the chest and the neck, and a strand of cat-gut had been passed underneath the outer end of the clavicle with the view of holding it forward. The clavicle was fractured at the junction of the middle and the inner third. On the 16th of January, the arm was amputated at the shoulder joint. There was no bleeding whatever, except a slight oozing from the muscles. Forceps were applied to the cut ends of the vein and artery, and, after slight manipulation, that attached to the artery dropped off with about an inch of the vessel. There was still no bleeding and a good deal of dissection was required to find the proximal end of the vessel, which bled freely and was ligated. The cords of the plexus were held together by cellular infiltration. There was no injury to the cords at the point of amputation. The boy made an interrupted recovery and has gone home.

There was, while in hospital, evidence of great nervous shock, but the local conditions were entirely satisfactory, and the patient was in all other respects quite well. The extraordinary feature about this accident seems to be that the vessel was not crushed off by the blow, but was torn apart at a point a couple of inches lower. I have not looked into the literature of the subject, but I have had no previous experience of such an injury, and would have considered it impossible if I had not seen it. Upon microscopical examination it was found that the inner coat of the vessel had been torn away for about a half or three quarters of an inch, which allowed, probably, contraction and inturning of the proximal end, and this prevented bleeding. There was no blood clot whatever at the point of the torn vessel.

PUERPERAL CONVULSIONS DUE TO INTRACRANIAL PRESSURE—LUMBAR PUNCTURE—RECOVERY.

BY

H. L. REDDY, M.D., L.R.C.P., Lond.,

Physician Accoucheur to the Women's Hospital, Montreal.

L. W., aged 18, admitted to the Women's Hospital May 2nd, 1906, in the sixth month of pregnancy. On examination she was found to be a healthy, well-developed girl. There was nothing worthy of note, except that the urea was 50 per cent less than normal. Three weeks after admission, œdema of the ankles and frontal headache were noted, and a week later the prodromata of convulsions appeared, severe frontal headache, flashes of light, general œdema and lassitude. She was then given the ordinary treatment given such cases, hot packs, free catharsis, with salines, iron and digitalis, and milk diet. She reacted well to treatment, the urea, nearly always from 500 to 600 grains per diem, only once was as low as 257½ grains. In all she was given six hot packs. During June and July, sometimes a very slight trace of albumin was present, but no casts could be found. Labour came on July 27th, lasting 17½ hours, and was perfectly natural.

July 28th.—Patient slept well during the night, but on awakening complained of severe frontal headache and a thick mist before her eyes. About two hours later she was only able to distinguish light from darkness. On examination by the house surgeon she was found semi-comatose; answered very slowly and deliberately, but rationally, when spoken to; face œdematous; respiration stertorous; pulse hard and full. Before any treatment could be given she had a convulsion. The ordinary treatment for convulsions was then given, bromide of potassium

and chloral by high enema, morphine, oxygen, etc. One convulsion followed another until she had nine, the time between each becoming shorter. On examination after the ninth convulsion we found the pupils did not react to light, pulse rapid, breathing becoming slower, shallow and stertorous, œdema, especially of face, very marked. The patient was comatose and evidently going from bad to worse. Since the urea had been abundant before delivery, and, therefore, it was not an auto-toxæmia, on consultation with Drs. Burnett and Thompson, we decided to do a lumbar puncture to relieve what we believed to be the cause of intracranial pressure. A puncture was made between the third and fourth lumbar vertebræ on the right side, one ounce of clear fluid being removed. The first portion of the fluid was slightly blood stained from the penetration of the parts by needle. The fluid spurted out at first, and we removed all that would flow. In twenty minutes the pupils began to react. In the next hour she had her three last convulsions, and then fell into a quiet sleep which lasted off and on until next morning. When she awakened she complained of headache, but felt better. Vision was returning rapidly, and the pupils reacted. Three hours later the patient was bright and cheerful; pulse, respiration and temperature normal; vision rapidly improving. From this time on she made an uneventful recovery, and was discharged on August 16th perfectly well. A catheterized specimen after the convulsion showed only a slight trace of albumin.

Dr. Kerry's report on the eyes, made two days after the convulsions appeared, is as follows: "Normal in appearance, pupils half dilated and sluggish in action, functions approximately normal. Fundi, veins dilated, slightly tortuous, arteries narrow, disc fairly defined, though somewhat veiled at the margin by œdema of the retina. Physiological excavation nearly obliterated, centre of the disc woolly in appearance. Maculæ large and pale.

The condition corresponds to one produced by raised intracranial pressure; the case furnishing a typical example of so-called uræmic amaurosis. In the more common type of this affection, the visible alterations in the fundus are confined to those described above, and as cases are on record of patients dying of uræmic poisoning within a few days after recovery from an attack similar to the one here described, it would seem as though this condition is not dependent upon the presence of uræmia. As the complex symptoms present in this case can be produced experimentally by a rapid increase of intra-cranial pressure, it seems but reasonable to ascribe its occurrence to this cause, the more so since the rapid recovery can thus be satisfactorily explained.

Examination made two days later showed no change except a slight increase of œdema around the disc.

This case is to me a very interesting one, showing that all puerperal convulsions are not due to autotoxæmia, as the quantitative analysis for urea showed, as well as the symptoms, and the prompt recovery after puncture. I doubt if the albumin had a significance, beyond showing pressure. The puncture is harmless and comparatively easily performed, and doubtless in many cases would relieve symptoms temporarily after a number of convulsions, as I believe fluid will then be found in the cerebro-spinal canal in these cases.

SHOCK SIMULATING CEREBRAL HAEMORRHAGE.

BY

J. ALEX. HUTCHISON, M.D.

Surgeon, Montreal General Hospital.

The patient, G. W., aged 33, a draughtsman, was admitted to the General Hospital, at 7 p.m., on December 6th, 1906. He had been standing on the rear platform of a street car, when the car running rapidly backwards crashed into another car, which was standing still. He was caught, with several other passengers and badly crushed, became unconscious, and was removed to the hospital.

Personal History:—Weak heart for years, not allowed to take part in athletics or to join regiment on that account; fairly active life and never had signs of failing compensation; does not use alcohol or tobacco to excess.

On admission:—Well nourished, healthy looking man; quite conscious and mentally clear; evidently considerable pain, no apparent shock. Extremities warm. Pulse 86, regular, good volume, low tension; temperature 99, respirations 22. Oblique fracture of right humerus about junction of middle and lower thirds; fracture of left femur in middle third; fracture of left tibia and fibula about junction of middle and lower thirds compounded by a large "button hole" opening on front of leg, apparently caused by upper end of lower fragment of tibia protruding through skin. Considerable hæmatoma and a small amount of oozing through wound. Lacerated scalp wound one inch long behind left ear over base of mastoid process surrounded by small hæmatoma; smooth bone at base of mastoid process can be felt with probe; abrasions of forehead and of lower abdomen; no evident injury to thorax or abdomen.

Patient made as comfortable as possible, splints applied to fractures, and scalp wound sutured. At 12 p.m., perfectly conscious and mentally clear. At 4 a.m., began to be rather dull; at 8.15 was stuperose, mild muttering delirium at times. Would only answer a few questions and did not seem to understand all that was said to him; no complaint of pain. Temperature 102 2-5, respirations 38, pulse 140, small, regular. No cough or consolidation of lungs, expansion equal. Apex beat just outside nipple line in 5th space, faintly palpable at apex; first sound loud and booming; no murmurs. Abdomen normal, except slight tenderness on pressure over pubes. Bowels and bladder normal. During the day stupor deepened to coma, from which he could not be roused.

Seen by Dr. Finley at 2.30 p.m. Unconscious; slight movement when pricked with pin; no evidence of paralysis; left eyelid almost completely closed, slight slit of right; pupils equally active to light; cornea on right completely anæsthetic, on left impaired sensation; McCarthy reflex present on both sides. Triceps and radial jerks present; plantar flexion; ankle clonus; knee jerk increased; epigastric present; cremasteric present.

Coma deepened, occasional cough, retention of urine, respirations increased in frequency, pulse steadily failed. A possible surface or sub-dural hæmorrhage was thought of and operation discussed but the patient died at 8.45 p.m., 39 hours after the accident.

Autopsy by Dr. R. C. Patterson, revealed fracture of right humerus and left femur; compound comminuted fracture of left tibia and fibula; multiple superficial abrasions; chronic endocarditis with stenosis of mitral and aortic valves; myocarditis; congestion and œdema of lungs; acute bronchitis; sub-pial œdema; ruptured capsule of spleen with blood in the peritoneum.

I am indebted to Dr. T. R. B. Nelles for the notes of this case.

This case was rather puzzling. A point which presented itself to me was that the stupor answered very well to the rupture of the middle meningeal artery. First of all, there was the unconsciousness for a short time, then a number of hours of perfectly clear mental condition and a slowly increasing coma. There was also the question that there might be pressure on the left side, but this could not be made out with sufficient certainty to warrant interference. One never sees rapid pulse and respirations with a cerebral hæmorrhage and as the respirations were up to 38, I felt that that must exclude this condition. Autopsy showed the brain itself, and the meninges, particularly in the neighbourhood of the meningeal arteries, to be perfectly normal and had an operation been undertaken we could not have interfered with the progress of the case.

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THE DUTTON MEMORIAL.

We take this opportunity of pointing out to our readers the movement to establish in the Liverpool School of Tropical medicine a research professorship of Tropical Medicine as a memorial to Dr. J. Everett Dutton who died in that service. A sum of £10,000 is required, and more than £4,000 has been already subscribed. A strong committee is now at work, under Royal Patronage, and the present appeal makes clear the great services that can be rendered by such a chair. Dutton himself died a victim to tick-fever contracted during its study, after he had already served on four expeditions, aiming chiefly at the solution of the question of sleeping-sickness which, the appeal points out, has caused the deaths of probably 600,000 persons in the last ten years. Amounts of money and cheques may be sent to Mr. A. H. Milne, Hon. Secretary, Liverpool School of Tropical Medicine, Liverpool.

THE CHAIR OF MEDICINE AT McGILL.

The announcement is made that, in succession to the late Dr. James Stewart, professor of medicine in McGill Medical Faculty, Professors F. G. Finley, H. A. Lafleur and C. F. Martin, are to be professors of medicine and clinical medicine. This will, therefore, involve no marked change in policy or practice, as these three physicians have already carried on the work of that department for several years. A department of medicine has been organised, controlled by a professor at each hospital who shall be jointly responsible for the didiactic work, and for the clinical work at the Hospital with which each is connected.

THE NEW FIVE YEAR COURSE AT McGILL.

The graduates and friends of McGill University will note with satisfaction, that the Medical Faculty has seen its way clear to a declaration in favour of this radical and important change, because change in this direction indicates a strong and responsible attempt to raise, in no small degree, the standard of excellence already attained. The medical course has hitherto been four years, of which the last has consisted largely of clinical work in the hospital wards. The third year has been a combination of laboratory and hospital work, and by reason of the large amount of time necessary for the teaching, in the second and third years, of laboratory subjects, it has long been felt that the magnificent clinical advantages offered in the hospitals would admit the devotion of even more time to bedside work.

The fifth year will be devoted entirely to hospital work, and as far as possible, to a more responsible kind of hospital work than has hitherto marked the fourth year, because it is thought that by the end of the fourth year, the student may, with advantage, depend upon his observations as well as upon facts told to him by his teachers; the cultivating of habits of observation has naturally been one of the main things sought in the course, up to the present, but it is possible to give the student yet wider opportunities for the exercise of this faculty, to urge him to observe, and to leave him more alone in the doing so. It is a matter of widespread belief that at present the student is asked to absorb too much; and the extension of the course will not mean a multiplication by five-fourths of the quantity of his attainment, but rather a betterment in the quality of his work and his knowledge, as well as an increase in its scope.

The step of adding one year to a course already long, cannot be made without a sacrifice, but this has been thoroughly considered. When a college rapidly raises its standard, the first result will be that it will lose a number of students, who will not appreciate the value of the increased investment required, and some others who can afford

a four, but cannot afford a five-year course, for in Montreal, the cost of living is high in comparison with other Canadian cities, where there are medical colleges, and to multiply this cost by five-fourths will turn the scale in some cases, and students will go elsewhere. But this falling-off, in all probability, will soon be compensated; for we understand that in a somewhat similar case, when Harvard University rapidly raised the standard, in demanding an academic course as the matriculation for medicine, the number fell off greatly during the first year succeeding the change, but rose rapidly, and has for some time past, reached the figures which existed before the change. In McGill University, where the Medical Department has not succeeded in paying expenses from an income, of which a great part is derived from fees, the further lessening of this income is a serious matter; but it is a proper standpoint that the quality of the graduate is the first factor, and the ways and means of his training a secondary, though important one. We offer the University our best wishes in their brave attempt to better their name in the true way, namely, by making the graduate of the Medical Faculty as well-trained a man as it is possible to make him.

THE LATE GEORGE ARMSTRONG PETERS, SURGEON.

No one who is conversant with medicine in Canada could fail to appreciate the loss it sustained by the death of Lieut.-Col. Geo. A. Peters, M.B., F.R.C.S., which occurred in Toronto, on March 12th, in his 48th year. We have had, and we have, surgeons in Canada to whom can be well applied the term "great," and whomever each reader may select as individually the foremost, all who knew Professor Peters and his work, will readily admit that he stood in the front rank of three or four of his time. This position has been freely accorded to him for perhaps fifteen years, for when he returned to Canada bearing the coveted title of Fellow of the Royal College of Surgeons, it took but a short time for him to show upon what basis his honours rested, and his early attainment to the Professorial rank in the University of Toronto, was but natural sequence of his merit.

His early life was beset with difficulties, and like many another, he taught school as a means to obtaining his further education; with a keen regard for the value of time, he worked hard all his life, and duty had upon him claims that he never refused. He was thoroughly trained in the laws of his profession, and to a well-based knowledge of medicine, and surgery, he added a dexterous hand and, better than all, a far-seeing and a quickly-acting brain. This showed itself in a far

more than ordinary degree of originality, and he devised some useful procedures of which we shall speak again. Dr. Peters was of a genial disposition, and had a cheery, good-humoured face, and with his students, a bantering way that gave no sting in its application.

Outside his profession, he had many interests, and a host of friends; in his leisure, he was devoted to sport of different kinds, of which the nearest to his heart was the horse. Dr. Peters had an all-round knowledge of horsemanship that would be a credit to any experienced cavalryman; he rode extremely well, was absolutely fearless in the saddle, and had an excellent "hand." It is not to be wondered at, that his stable was generally well stocked, and that he took much relaxation from his horses. He played golf moderately well, and was fond of the game. As might be expected, his love for horses led him into military work, and after some years passed as an officer of the Governor General's Body Guard, he raised the corps known as the Toronto Light Horse, of which he had command, subsequently as Lieut.-Colonel. The Corps was an excellent one, and its excellence depended in no small degree upon Lt.-Col. Peters, for when his health compelled his resignation, the regiment was disbanded.

In the absence of a complete bibliography it is not easy to refer to Dr. Peter's contributions to science, but well-known to all are his method of making plaster-casts by the previous use of a paraffin spray, as well as his method of leading the ureters into the rectum in cases of exstrophy or excision of the bladder. These are but indications of his readiness of perception and originating power. He invented a self-registering rifle-target which bears his name, and has already found considerable favour.

Dr. Peters was born in Wellington Co., Ontario, in 1859, and after studying in country schools, subsequently teaching in a school, he graduated from Toronto University in 1886, being gold medallist in his year, as well as winning the Starr gold medal in the same year. After his term in the Toronto General Hospital as house-surgeon, he became a member of the Royal College of Surgeons, and in 1890 he became Fellow of that institution. In this matter, he was one of the first, if not the very first of Canadians of this generation, to obtain that distinction.

He was shortly after appointed to the surgical staff, and became Professor of Surgery and Clinical Surgery in the University, a surgeon to the Toronto General Hospital, and a surgeon, afterwards a consulting surgeon to the Hospital for Sick Children.

He had many friends in social life, was a member of the Toronto Club, the Toronto Hunt Club, the Toronto and Lambton Golf Clubs,

and it may safely be said that few men will be so missed by so many friends. Dr. Peters leaves a widow, who is daughter of Chief Justice Sir William Meredith, Chancellor of the University, and two young children.

The forty-ninth annual report of the Nova Scotia Hospital for Insane, has been issued. During the year 580 patients were under treatment. The percentage of deaths was 5.8, and of cures 4.2. Dr. Lawlor has been promoted to the post of assistant physician and Dr. G. A. McIntosh has joined the staff. Dr. Hattie, the superintendent, notes the occurrence of several cases of typhoid during the year, and investigation by experts seems to implicate the water supply. Many improvements are in progress, including a residence for the superintendent. The total expenditure for the year ws $80,663, and the income $48,262. A training school for nurses has been established, and "all nurses are required to be sober, honest, truthful, trustworthy, punctual, quiet, orderly, cleanly, neat, patient, kind, and cheerful." Dr. Hattie's fellow alienists would be glad to be informed where he discovers a supply of nurses possessing these desirable qualities. Such miracles must be rare even in Nova Scotia.

Mrs. Featherstone Osler, the mother of Dr. William Osler, and of other eminent sons, passed away in Toronto, on February 18th. Dr. Osler came over from Oxford to attend the celebration of her 100th birthday in December last, when there were present four sons, one daughter, 24 grandchildren, and 21 great-grandchildren. Mrs. Osler was a woman of great and practical piety, and of unfailing good humour. Those, indeed, whose privilege it is to have known well both mother and son, cannot wonder at Dr. Osler's keen sense of humour, his devotion to the day's task and to his fellow-workers, his intimate knowledge of the Scriptures, or his love for good books. Mrs. Osler was born in Falmouth, Cornwall, and came to Canada with her husband, a missionary, in 1837.

Lord Lister has favoured us with a copy of his Huxley lecture delivered at the request of the Council of the Charing Cross Hospital in 1900. At that time the lecture appeared in current medical literature with the usual inaccuracies, and for reasons personal to Lord Lister its re-appearance has been delayed. In a modest note the author says, "though belated, it may still have interest for some of my pro-

fessional brethren." In this belief we all concur. The lecture contains a fascinating account of the stages by which Lord Lister arrived at the conception of antiseptic surgery.

Hospital staffs are complaining of the advanced tariff on medical instruments that are "not metal," and a petition to the Government in this connexion may be forth-coming. Formerly the price of clinical thermometers, notoriously fragile necessities, was 40 cents. Now the cost is 60 cents, and the advance is said to play sad havoc with the remuneration of junior nurses.

A proposal is on foot in Regina for the erection of a hospital of 60 beds, to be under the care of the Grey Nuns. The Roman Catholics of Regina, who are advancing the scheme, are asking the city council for a free site. An expenditure of close upon $100,000 is contemplated on the building and its equipment.

Reviews and Notices of Books.

THE BACTERIOLOGICAL EXAMINATION OF WATER SUPPLIES. By WILLIAM SAVAGE, B.Sc., D.P.H., Medical Officer of Health. H. K. Lewis, 136 Gower St., London W.C., 1906. Pages 297, 6s. 6d. net.

This little work of less than three hundred pages is admirable, and deserves a hearty welcome from all English-speaking bacteriologists and students of public health, because it performs the most needed service of bringing together in an impartial and masterly manner the important results gained by English and American workers upon the bacteriological analysis of water. There is an equally sure grasp of the work accomplished by German and French workers—that we do not dwell upon because, through the *Centralblatt für Bakteriologie* and the *Bulletin de l'Institut Pasteur,* foreign results are easily followed by all interested in the subject. It is otherwise with English and American work. During the last decade the most solid and most notable advances in water analysis—the most basal work and that on the largest scale—have emanated from the United States and from Great Britain. In both countries it had been realised that an *impasse* had been reached from lack of uniform methods of examination and description of water bacteria, and independently in both countries those interested constituted themselves into committees for the appointment of standard

methods, standard media for cultures, and series of tests necessary for the adequate description of species examined. It is pleasant to think that the initiative for the establishment of these committees proceeded from the midway of Canada, from Montreal, and from our late colleague, Wyatt Johnston. But unfortunately the good work accomplished in one country has largely been hidden from workers in the other. These long series of tests of different waters and of determinations of proper media and methods have naturally been carried out in the main by those connected with local health authorities, and in the official publications of Boards of Health it is,—jumbled up with reports of all kinds, from death statistics and the registration of embalmers to the percentage of alcohol in patent medicines and the composition of baking powders—that we have to look for the valuable data supplied by the official bacteriologists: not to special journals. We note with satisfaction that the *Journal of Hygiene* has recently established a special section in which note is taken of valuable scientific work buried in these official reports.

The reports of the Medical Officers of the Local Government Board, of the Royal Sewage Commission (the "Royal" referring to the Commission, by the by, not to the Sewage), and of the London County Council are as difficult to encounter in America as in Great Britain are those of the Massachusetts State Board of Health and the New York Chicago Health authorities. Dr. Savage shows himself as familiar with, and appreciative of, the trend of recent American work, while briefly and critically he affords to American workers a much needed digest of the recent English work, of which that of Houston stands out as the most extensive and valuable. It is this due presentation and careful weighing of the best work of both schools that renders Dr. Savage's work at once so serviceable and timely. His conclusions regarding the presence of the Bacillus Coli in water supplies and its significance strike us as sound and deserving of consideration, while his opinion regarding the significance of the B. enteritides sporogenes is that generally held upon this continent. J. G. A.

AN EPITOME OF DISEASES OF THE NOSE AND THROAT. By J. B. FERGUSON, M.D., New York. 12mo, 243 pages, 114 engravings. Cloth, $1.00 net. Lea Brothers & Co., 1907. (Lea's Series of Medical Epitomes. Edited by Victor C. Pedersen, M.D., New York.)

The author has presented in concise form the diagnosis and treatment of diseases of the throat and nose. He has planned the book to be

helpful to the under-graduate and post-graduate medical student, and to the general practitioner. All these classes of readers will appreciate the systematic arrangement, the clear directions for examination, the illustrations of instruments and of diseases, and the formulæ for medication. *The Medical Epitome Series*, of which this is the latest volume, covers the whole range of medicine, surgery, and the specialities in original books written by recognized authorities, and uniformly priced at one dollar.

Nervous Diseases—Organic and Functional. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Professor of Neurology, College of P. & S., Med. Dept. of Columbia University, N.Y. Consulting Neurologist to the Presbyterian and St. Vincent's Hospitals, St. Mary's Free Hospital for Children and to the New York Eye and Ear Infirmary. Second Edition. Lea Brothers & Co. New York and Philadelphia, 1907. pp. 816.

It is always a pleasure to see a new edition of a good book and especially, as it has been thoroughly revised and rendered more complete by the addition of the functional diseases of the nervous system, is this new edition of Professor Allen Starr's work the more welcome.

In the article on Tabes Dorsalis we would like to have seen a more lengthy note on Frënkels re-educative treatment of the ataxia, believing as we do that the results of this treatment are in many cases very successful. The author merely refers to it.

In the chapter on Tics and Spasmodic Torticollis, we notice no reference to Meige's work on this subject. The chapters on Functional diseases are certainly a necessary addition and are treated in a scientific manner. Their only fault is their brevity. The book is, throughout, well illustrated with numerous photographs and plates, and the print is good. It is thorough and readable, and can be highly recommended as a text-book to those interested in Diseases of the Nervous System.

Syphilology and Venereal Diseases. By C. F. Marshall, M.D., M.Sc., F.R.C.S., Late Assistant Surgeon to the Hospital for Diseases of the Skin. Blackfriars, London; Baillière, Tyndall and Cox. Canadian agents, J. A. Carveth & Co., Toronto, 1906. Price, $3.00.

As a reliable text-book on syphilis, in all its forms, this work is to be highly commended. It opens with a short history of the disease, a concise review of the general course and its relationship to other diseases and a chapter on the general pathology. It then discusses in detail the lesions produced in the various organs of the body, a chapter in most

cases being devoted to each. Treatment is admirably dealt with and the relationship of syphilis to life-insurance and marriage, heredity, congenital syphilis and the possibility of transmission to the third generation are fully discussed. The work is modelled, as the author acknowledges, upon the classical work of Fournier from which most of the statistical tables are drawn. Plates of the micro-organisms of syphilis and gonorrhœa, and of the microscopical appearances in some of the organs are the only illustrations.

The author believes that in the spirochætæ pallida the true organism of syphilis has at last been discovered, and certainly the evidence given is most convincing if it cannot as yet be held to be proven. He is also a strong believer in the possibility of third generation syphilis and adduces some strong arguments in its behalf. The half dozen chapters included in the book on gonorrhœa and simple chancre are very incomplete and this portion of the work does not come up to the high standard of the rest.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D. Volume IV, sixteen series, 1906. J. B. Lippincott Company, Philadelphia and London.

This volume of the familiar series covers the whole range of medicine and surgery and the various allied specialities in the thorough fashion to which we are now accustomed. There are twenty-two articles, many of them of high importance, twenty-seven coloured plates, forty-six plates, and innumerable figures. A book of so wide application does not readily lend itself to review. We must be content with commending it highly.

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., M.A., F.R.S. (Edin.), Professor of Physiology at the University and Bellevue Hospital Medical College, New York City. Octavo of 326 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1906. Cloth, $2.50 net. Canadian agents, J. A. Carveth & Co., Toronto.

One effect of this book, we imagine, will be to promote the investigation of nutrition in laboratories and hospitals. It is this painstaking routine which impresses one in the German clinics, and is so conspicuously absent in America. It is doubtful if the labour bestowed upon the task has been rewarded as yet, with adequate results; but that is a reason for continuing it. The historical introduction is full of interest in its matter and presentation. Fifteen chapters follow with a most valuable appendix. The book is of high scientific and literary value. Every physician requires it, who desires to be well informed.

THE PRACTITIONER'S MEDICAL DICTIONARY. By GEORGE M. GOULD, A.M., M.D. With 388 illustrations. Octavo, 1043 pages. Flexible leather, gilt edges, rounded corners, $5.00; with thumb index, $6.00. P. Blakiston's Sons & Co., 1012 Walnut Street, Philadelphia.

The making of a medical dictionary is not a mere matter of industry. Besides labour, it requires heart and intellect. Dr. Gould has supplied all three. In addition to the usual features of a dictionary, the present work contains among other new features the terms of the Basle Anatomical Nomenclature and the standards of pharmaceutic preparations as authorized by the eighth decennial revision of the United States Pharmacopœia. Not all the absurd, newly-coined words which cumber and deface medical writing are included, but those which are likely to be permanent are faithfully recorded.

The author's work has been done with intelligence, and the publisher has equally well done his part. The book is made up in a form suitable for ready reference, complete in text and illustration, and attractive in appearance. It is printed on tough, thin paper; excessive weight and bulk is eliminated, while the dull surface of the paper, together with the employment of new clear type, facilitate ease and comfort in reading. The book will lie flat at any page at which it may be opened.

BIOGRAPHIC CLINICS. Influence of Visual Function upon Health. By GEORGE M. GOULD, M.D. P. Blakiston's Son & Co. Philadelphia, $1.00 net. Vol. IV. Vol. V.

Volume IV contains studies of the personalities of Balzac, Tchaikovsky, Flaubert, Lafcadio Hearn, and Berlioz. The study upon Balzac first appeared in this JOURNAL. The volume contains, in addition, essays upon the progress of the recognition of eyestrain as a factor in many abnormal conditions; upon the origin of epilepsy, and upon failures in ophthalmic practice. The second volume is fresh from the press, and contains twenty-four chapters dealing largely with cases illustrating the evil effects of eyestrain and demonstrating the effect of proper treatment. Not all ophthalmic surgeons go as far as Dr. Gould; but by his indefatigable efforts during the past ten years there is now a juster appreciation of the significance of eyestrain. Dr. Gould has carried on his propaganda with an enthusiasm and good-nature, which have won esteem for him, even from those who are not yet wholly convinced. He has brought to the task of enlightenment professional knowledge, operative skill, wide learning; and he has fused these together with rare literary accomplishment. The books have the

quality of sincerity, as if they arose out of a man's life. Those who have read these papers in medical journals, will be glad to have them in form convenient for re-reading and for consultation.

Aids to Dental Surgery. By Arthur S. Underwood, M.R.C.S., L.D.S., Eng. and Douglas Gabell, M.R.C.S., L.R.C.P., Lond., L.D.S., Eng. Second Edition. pp. 126. Price 75 cents. London; Baillière, Tindall and Cox, 1907. Canadian agents, J. A. Carveth and Co., Toronto.

These little books are well written, and above the average of their class. That on diseases of children, gives short, concise descriptions of the various diseases and their treatment, with numerous tables of differential diagnosis. There is a useful appendix on therapeutic measures and a formulary. The Aids to Medical Diagnosis is well arranged. The chapters deal with the infectious diseases and the various systems, with symptoms and combinations of symptoms as subheadings.

Aids to the Diagnosis and Diseases of Children. By John McCaw, M.D., L.R.C.P., Edin., Physician to the Belfast Hospital for Sick Children. Third Edition. pp. 383. Price $1.25.

Aids to Medical Diagnosis. By Arthur Whiting, M.D., M.R.C.P., Physician to the Tottenham Hospital, etc. pp. 152. Price 75 cents.

War With Disease. By Frederick F. MacCabe, M.B., Dublin, Medical Officer, South of Ireland Imperial Yeomanry, Late Civil Surgeon, H.M. Field Force, South Africa. Second Edition. London; Baillière, Tindall and Cox, 1907. Canadian agents, J. A. Carveth and Co., Toronto. pp 125. Price 50 cents.

This little book consists of five admirable lectures on preventive medicine, delivered originally to British Army Officers and men, and so dealing more especially with military hygiene. They are scientific, and are written in a pleasing and clear style, avoiding, as far as possible, technical terms. The author deals fully with the modern knowledge of etiology, and shows how preventive measures, in the light of that knowledge, are merely such as common sense would indicate. In this edition there are added two lectures, one chiefly anatomical, introductory to the training of an ambulance corps.

Annual Report of the Surgeon-General of the Public Health and Marine Hospital Service of the United States for the Fiscal Year 1906. Government Printing Office, Washington, 1907.

This work, in addition to official reports of the manifold activities of this very efficient department of the United States Government, con-

tains interesting statistics on epidemiology in all parts of the world for the years of 1905 and 1906. In 80 closely printed pages is given a complete detailed account of the yellow fever epidemic of 1905, in the Southern States, and of the measures taken to stamp it out. Very brief mention is made of the remarkable achievement of the Americans in dealing so successfully with uncinariasis in Porto Rico.

A Pocket Formulary. By E. Quin Thornton, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. New (8th) edition, revised. Leather, $1.50 net. Lea Brothers & Co. Philadelphia and New York.

This well-known formulary has been revised to accord with the new United States Pharmacopœia. It consists of about 2,000 prescriptions grouped under the names of diseases which are arranged alphabetically. Under each formula is a short note as to its particular indications. Neither as to bulk nor contents is the book just adapted to a normal pocket.

Medical News

MONTREAL GENERAL HOSPITAL.

During the month of February, 253 patients were admitted to the wards of the hospital and 223 were discharged. There were 26 deaths, 12 of which occurred within three days of admission. The average daily sick in the hospital was 212, and the highest number on any one day 222. Outdoor consultations numbered 4,084. The ambulance made 117 runs in response to calls. The average number of visitors at the hospital on visiting days was 342.

ROYAL VICTORIA HOSPITAL.

Monthly report for February:—Patients admitted,275; discharged, 257; died, 17. Medical, 84; surgical, 108; ophthalmological, 14; gynæcological, 36; laryngological, 33. Out-Door Department.—Medical, 723; surgical, 778; eye, 260; diseases of women, 104; nose, throat and ear, 505. Total, 2,370. Number of ambulance calls, 96.

Dr. W. J. Dobbie, lately of the Tuberculosis Hospital at Weston, Ont., takes medical charge of the Muskoka Cottage Sanitarium, at Gravenhurst. Dr. J. H. Elliott, who has held the position for some years, has resigned in order to practice as a consultant on Tuberculosis in Toronto.

At the annual meeting of the Canadian Association for the Prevention of Consumption, it was stated that in Ontario and Quebec during a period of five years, there had been a saving of 816 lives in the last year of the period as compared with the first.

Mr. William Southam, of Hamilton, Ontario, has offered $15,000 for the erection of a wing for incurable consumptives in connection with the City Hospital.

Dr. John C. Howe, died suddenly of heart disease, on February 15th, at his home in Quebec. He was a graduate of Laval University, and held the office of Medical Inspector of Immigration at Quebec, where he had practised nearly twenty-five years.

Dr. Alex. MacIntosh, of Antigonish, died on February 27th, at the age of 75. He had retired from active practice, but filled the office of Judge of Probate for the County of Antigonish up to the time of his death.

Dr. Daniel M. Johnson died on March 12th, at Tatamagouche, N.S. He graduated in 1875 at Halifax.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

JOSEPH A. BLAKE, M.D. "The Treatment of Diffuse Suppurative Peritonitis." *Amer. Jour. Med. Sciences.* March, 1907.

The treatment is divided into two phases, the operative and post-operative. The principles of the former are to remove, as rapidly as possible, through a small incision, the origin of the peritonitis, to wash or irrigate the peritoneal cavity, to use as little drainage as possible, and not to attempt to drain the general peritoneal cavity. The patient is returned to bed and put at once in the Fowler position, not, though, as is generally held, for drainage purpose, but because it seems to enhance the patient's comfort and diminish vomiting. The pelvic colon is irrigated by means of two long rubber tubes, the inlet tube being smaller than the return. The writer prefers an intermittent irrigation every

three or four hours during the first forty-eight hours, or a slow irrigation lasting forty to fifty minutes. Morphine is given immediately after operation to secure rest, but is not repeated after the first twenty-four hours. The stomach is generally washed out on the table, and no food given until peristalsis is re-established. Early catharsis is not employed. Irrigation of the peritoneal cavity is performed by means of double irrigators. Its efficiency depends largely upon the fact that the fluid is removed by siphonage as rapidly as it is introduced, that the various fossæ can be cleaned without spreading the infection, that it achieves quickly what drainage does more slowly and imperfectly, and that it produces no traumatism. In general, a drain is inserted just through the abdominal wall to allow excess of irrigation to escape, and prevent suppuration of the wound, so liable to ensue. When dangerous spots remain, as a gangrenous patch on bowel suture line, etc., a drain is led down to the area to keep an open way for subsequent pus formation or perforation. Although an advocate of washing versus drainage, the writer believes that the better results now obtained are due, not so much to either one or other of these procedures, but to the increased rapidity in getting the patient off the table, the use of large quantities of fluid by the bowel, rest for the entire gastro-intestinal tract, and possibly by the Fowler position. The results obtained, considering the class of cases, are good. Of the 78 cases of diffuse peritonitis caused by appendicitis, there was a mortality of 19.2 per cent. Of these 7 were not drained, and 8 were so treated. Two of the cases not drained were cured of peritonitis, one died from some cause not determined, the other from a double pneumonia. Two who were not drained and two who were, were moribund and died within a few hours.

Of the 13 cases of peritonitis due to perforation or rupture of stomach and upper intestine, there was a mortality of 30.7 per cent. Here also drainage and non-drainage gave about equal results. In eight cases of typhoid perforation there was a mortality of 50 per cent. In explanation, it may be said, that when a case is stated not to have been drained it refers to drainage of the peritoneal cavity. It seems to us that the drain introduced just into the peritoneal cavity, is practically a drain to that entire space. The peritoneum is left open at this site, and the excess of irrigating fluid and subsequent exudate find exit through it. It is claimed for the double irrigator, that its efficiency depends upon the fact, that the fluid is removed as rapidly as it enters the abdominal cavity. If this be so, why should there be any excess of irrigating fluid to drain away subsequently? Does not the presence of this excess of fluid suggest the possibility of having spread the infec-

tion? The very marked improvement in results obtained by such surgeons as Murphy, the Mayo Brothers, Munroe, and others since adopting the non-irrigating treatment of the abdominal cavity go a very long way to contradict the advantages claimed for peritoneal lavage. Regarding Fowler's position, we consider it a distinct help in securing drainage. By it, the infectious material is drained away from the most dangerous part of the peritoneal cavity, to the least dangerous, from the diaphragmatic to the pelvic. Since its adoption, we have not had one death from septic pneumonia, whereas, formerly, this was not an infrequent cause of death.

Francis A. Goeltz, M.D. "Successful Anterior Thoraco-Bronchotomy for a Foreign Body Impacted in the Bronchus." *Annals of Surgery,* March, 1907.

The case occurred in a boy, 6 years and 9 months old, who, while playing, inspired a small metal collar button. He began to cough for a little while and then stopped, and his parents, thinking he had swallowed the button, paid no more attention to it. During the night he had several attacks of coughing, accompanied by dyspnœa and cyanosis. At that time of examination, the breathing was easy, but respiration was limited over the right side. There was some dulness on this side, both anteriorly and posteriorly, and the respiratory murmur was much diminished posteriorly, and almost absent anteriorly. Examination of the larynx was negative, as was fluoroscopic examination of the chest. Through a low tracheotomy wound the button was found to be impacted in the right bronchus, and considerable time was spent in trying to remove it through the wound. Anterior thoraco-bronchotomy was decided upon and performed as follows:—A curved incision was made, beginning over the second rib just beneath the middle of the clavicle, carried downward and inward to within an inch of the right margin of the sternum, and thence outward to the level of the fifth rib, an inch to the inner side of the nipple. The cartilages of the third and fourth ribs were divided about half an inch from their sternal attachments, and an osteo-plastic flap made by fracturing these two ribs. This secured a good opening to the lung which was found collapsed, and, through which the button was easily palpated. There was a slight movement of the bronchus with respiration, which was controlled by an assistant hooking a finger under it. As the over-lying lung could not be rolled backwards, an incision was made through the lung tissue and bronchus down to the button, which was removed by artery forceps. There was practically no hæmorrhage, and the lung wound was not sutured. The thoracic flap was sutured, and the

tracheotomy wound closed, but on account of the great amount of surgical emphysema around the larynx and neck, which developed shortly after operation, a tube had to be inserted to relieve the dyspnœa. The wound in the lung became sealed over in 24 hours, as evidenced by the disappearance of the whistling murmur heard on inspiration, and the pneumothorax gradually cleared up. The case was discharged within three weeks, and 18 months after the operation, the expansion of the thorax was equal and respiratory sounds normal.

Arthur Tracy Cabot, A.M., M.D. "A Contribution to the Study of Hydronephrosis." *Boston Med. and Surg. Journal*, Feb. 28, 1907.

Attention is drawn to the difference between a true and a false hydronephrosis about which considerable confusion exists in the profession. In a true hydronephrosis the pelvis of the kidney is distended, and as the tension increases the kidney substance becomes stretched and thinned, forming sometimes no inconsiderable part of the wall of the cavity. In a false hydronephrosis the fluid is contained in a sac outside of the kidney. Both conditions may co-exist, and the writer cites two cases of such a condition, one the result of traumatic rupture of the kidney from a fall, the other of congenital origin, caused by the ureter being looped over an abnormal artery supply to the kidney. In the latter case, repeated attacks of severe abdominal pain began when the child was one and a half years old, and the explanation advanced, namely, that the vertical position, by that time assumed by the boy, caused a kinking of the ureter at the point where it looped over the artery, is a most plausible one. Another case of true hydronephrosis, congenital in origin, is given, in which the obstruction appeared to be due to a valve-like projection at the junction of the ureter with the renal pelvis. Excluding those cases where the hydronephrosis was caused by an obstruction in the lower urinary passages, all the writer's cases have been evidently caused by a moveable kidney, allowing the ureter to become kinked or twisted. He has seen good results follow manipulation and postural treatment, in cases where the distension was of moderate degree. For the radical cure, he has stitched the kidney to the 12th rib and fascia and inserted a bougie to beyond the tortuous portion of the ureter. This last procedure he regards as more important in the cases given than fixation, through acknowledging it as being open to question. He has determined the cause of the limitation of the extravasated blood and urine in cases of renal traumatism and

rupture to be due to the outer fibrous wall of the so-called fatty capsule, and not to inflammatory formation as suggested by Morris.

W. L. B.

PATHOLOGY

UNDER THE CHARGE OF J. G. ADAMI.

A critical survey of the work done by pathologists during the year just gone cannot fail to be of interest and profit to those who believe in "brain-dusting," or mental house-cleaning, whether annual or quinquennial. As one might expect, nothing much that is new has appeared with regard to the morbid appearances and the treatment of disease, but the really important studies have been made almost entirely from the experimental side. Work of this kind, of the most complicated and arduous nature, has been carried on in practically all civilized countries. While nothing very startling has been advanced, we should by no means be justified in concluding that no progress has been made. Yet, it has been progress of the potential kind, a sort of clearing away the underbrush, we might put it, which, we may confidently hope, has prepared the way for most substantial advances in the near future. To sum up the general trend of pathological investigation, we may say, that hitherto accepted facts have been tried anew in the crucible of experience; the more or less widely-accepted theories have been controverted, confirmed, or re-stated: and most fertilizing suggestions have been brought forward. It seems to me that the following topics, about which the clouds of controversy still hang thick, will prove most fruitful for our consideration in a review of this subject: *arteriosclerosis*: *malignant new growths*: the *opsonic theory*: *tuberculosis*: and *syphilis*. In the last-mentioned disease particularly the progress has been of the most substantial nature, and augurs well for the future.

Arteriosclerosis.

With regard to arteriosclerosis most of us probably have been resting on the time-honoured theory of Thoma, namely, that the affection is due primarily to degenerative and atrophic changes in the media of the blood vessels, to which is subsequently, or, perhaps more correctly, simultaneously, superadded a thickening of the intima as a compensatory change. While this view was based upon an extended series of observations, there were not wanting those who disagreed with Thoma, regarding the intimal changes as of chief importance. There, was, moreover, some debate as to what constitutes *arteriosclerosis*. Jores, for instance, would restrict the term to those forms of vessel-thickening

in which there is hyperplasia of the intima with a peculiar splitting of the internal elastic lamina. Others, again, use the term in its widest sense to designate, as Lobstein originally intended it to mean, all forms of arterial disease characterized clinically by thickening of the vessel-walls. During the past four years most of the experimental work upon the affection in question has been carried on. In general, it may be said, that the majority of observers agree as to facts of the histological changes occurring in arteriosclerosis, but some disagree on the interpretation of these facts, and on the farther question whether experimental arterioclerosis can properly be compared with that form of it occurring naturally, as we might say, in man. To clear up some of these points, Dr. Oskar Klotz, working in our laboratories in McGill, has instituted a study, which to my mind constitutes the most notable contribution to the elucidation of this knotty subject during the past year (Journal of Exper. Med., Vol. VIII, 1906, p. 322: and Brit. Med. Journ. Dec. 22, 1906, p. 1767). Dr. Klotz has carried out a series of experiments with adrenalin, digitalin, and barium chloride, drugs which increase the blood pressure. He finds, as others have done, that the injection of these substances over a period of time in rabbits will produce arterial disease, consisting of a fatty degeneration and necrosis of the muscle fibres of the media, with, finally, calcareous deposit, leading to a fusiform dilatation of the vessels. In all cases the intima was practically unaffected and was carried over the deeper lesions as a continuous sheet. These phenomena have been variously interpreted as due (1) to increased blood-pressure, (2) to a lack of nutrition of the fibres of the media, and (3) to a direct toxic action of the drug employed upon the muscle-fibres of the media. That increased blood-pressure alone was not the cause was proved by the fact that when the drugs in question were combined with agents, such as nitroglycerine and nitrite of amyl, which lower blood-pressure, the effects on the vessel were still produced, though it is true, to a less degree. Adrenalin, when injected into the skeletal muscles in a strength of 1-1000 produced immediate necrosis of the tissue. Weaker solutions produced a fatty degeneration of the muscle fibres. Klotz concludes, therefore, that the vascular changes produced by the injection of adrenalin are of a degenerative character and due to the toxic action of the drug upon the muscle fibres. He also thinks that the medial changes are primary. The same results were obtained with all the agents employed. That blood-pressure is also an element is proved by the fact that the lesions were most advanced in the thoracic aorta and the first part of the abdominal aorta.

A parallel series of experiments were carried out to determine the action of bacteria and bacterial toxins on the vessels. For this purpose the B. Typhosus, the Streptococcus, and the B. Diphtheriæ, were injected intravenously. The effects of the injection of the first two organisms mentioned were identical. The first part of the pulmonary artery and of the aorta showed warty thickenings of the intima. No aneurysmal dilatation resulted, and there was no calcareous degeneration of the media. Histologically, there was a fatty degeneration of the subendothelial tissue, with proliferation of the connective-tissue into the degenerated area. The internal elastic lamina was split into several layers, between which were proliferating cells. The area involved included the intima and the inner layer of the media. There was no small-celled infiltration. The lesions in question, therefore, differ entirely from those produced by adrenalin, being on the whole productive rather than degenerative. The inoculation of the diphtheria bacillus gave different results, the changes, in fact, being identical with those resulting from the employment of adrenalin. The thinning of the arterial wall, the aneurysmal dilatation, the calcification, were all present, and the lesions were confined to the media.

The conclusions of the whole matter to my mind, after consideration of the trend of all the work done on this subject of arteriosclerosis, are: (1) That the term arteriosclerosis includes a variety of differing pathological conditions, and should be used in a wide sense to designate any and all of those conditions which are evidenced clinically by thickening of the arterial wall: (2) Histologically, we have three main types of lesions, (a) that described by Thoma, consisting of a primary degeneration of the media, (b) the form described by Jores, in which there is a primary proliferation of the intima, (c) the inflammatory variety, of which syphilitic mesarteritis and aortitis may be taken as the type, where there is definite infiltration of the vessel wall by inflammatory products.

With regard to the vascular changes produced by infection and intoxication, it may be inferred with great probability that the character of the lesions resulting depends upon the nature and intensity of the poison. A virulent germ, for example, may produce acute inflammation of the wall, with loss of substance and even thinning of the tissue, as in the so-called mycotic aneurysms. A less powerful action will lead to degeneration of the cells. A milder irritant still will lead to proliferation. It may be, too, as Prof. Aschoff suggests, that in addition to peculiarities of the offending toxins, we may have to take into account special affinities of special vessels or coats of vessels towards special toxins. Finally, it is, perhaps, not too much to say that in the past

clinicians and pathologists have laid too much stress upon the mechanical factors in the causation of arteriosclerosis, blood-pressure, peripheral resistance, elasticity, and what not, and not enough upon the influence of infection and intoxication. It will be admitted, however, that many cases of arteriosclerosis come under the ken of the physician in which the influence of poisons, such as alcohol, lead and arsenic, and of the various infective diseases can be excluded. Possibly, in such cases, if I may hazard a suggestion, we may have to seek the etiological factor in some disorder of internal secretion or, again, it may be in the absorption of bacteria or poisonous substances from the alimentary tract.

Cancer.

A great deal of excellent work is now being done in the study of carcinomata and malignant growths generally, chiefly from the experimental side. Six or seven distinct institutions now exist in Great Britain for the scientific investigation of cancer, besides several in the United States. During 1906, a new Cancer Institute was opened in Heidelberg, under the direction of Prof. Czerny, who has at last seen his aspirations and endeavours crowned with success after much opposition and discouragement. Similar institutions are projected in France. Perhaps the most important research work which has lately seen the light emanates from the laboratories of the Imperial Research Fund and the New York State Laboratories in Buffalo. The investigations going on at present are attacking the problem of cancer on the widest possible lines. Questions of geographical distribution, age, sex, race, heredity are being inquired into. The problem of neoplasia is being approached at present from the point of view of the vegetative and proliferative capacity of cells and of biophysical and biochemical phenomena. And, of great importance, studies are being begun on the the subject of immunity. At present it may be said that the study of cancer by means of animal experimentation is thoroughly scientific and based on solid foundations. The lesions of cancer can be reproduced experimentally and the disease in mice is strictly analogous to the disease in man. It seems also to be fairly agreed that the experimental inoculation of cancer is in no sense comparable to the process of infection. Finally, mice can be rendered immune to inoculation. In the English laboratories, too, the various cancer "cures," Doyen's serum, trypsin, and the like, some of which have been, unfortunately, so much exploited in the lay press, have been tried in the balances and found wanting.

For the past few years the parasitic theory of the causation of cancer has lost ground, and in most quarters is regarded with great scepticism.

Gaylord, who has been the most painstaking and consistent upholder of the infection idea in malignant disease, brought forward some facts at the meeting of the British Medical Association at Toronto which go far to support his view, and which it will be hard for his opponents to explain away. Dr. Loeb, well-known to us here in Montreal, had been making some observations on a cystic sarcoma of the thyroid in a rat which he was transplanting from one individual to another. Two large cages which he had been using had been put away without sterilizing. Subsequently, Dr. Gaylord placed some rats, from different stock from those of Dr. Loeb into the cages. Seven rats in the large cages, which had been there for from twelve to fourteen months, were, later, examined and three were found to have developed tumours, two fibrosarcomas of the abdominal wall, and one cystic sarcoma of the thyroid. No other rats in the laboratory, and the number approximated one hundred, living in clean and disinfected cages, developed new growths. In a second observation Gaylord found a cage in which mice were kept, in which no less than sixty tumours developed in the course of three years, in spite of the fact that the location of the cage had been frequently changed, and the stock of mice completely renewed on at least one occasion. The tumours in question were adenocarcinomata.

Clowes (Brit. Med. Jour., Dec. 1, 1906) refers to some very important observations made at various times at the Buffalo Cancer Laboratory, observations which are now corroborated by Bashford of the Imperial Cancer Research Fund. Clowes' work has been largely concerned with the question of the transplantation of tumours, the effects on cancer cells of inorganic disinfectants, and the production of immunity against cancer. In his experiments more than 7,000 mice have been employed. His conclusions are as follows:

1. Primary tumours are only transplanted with great difficulty; after the first generation the yield of tumours gradually increases until a maximum virulence is attained, which subsequently remains fairly constant for a considerable period of time.

2. Increase in virulence of a tumour strain is invariably associated with an increased rate of growth of the individual tumours.

3. The proportion of tumour mice recovering spontaneously in any series is apparently inversely proportional to the virulence and speed of development of the tumours of that series.

4. The larger the dimensions actually reached by a tumour, the smaller are the chances that it will recover spontaneously.

5. All tumour cells appear to be destroyed at a temperature of 45°C. Incubation of macerated tumour material for twenty to thirty minutes at temperatures ranging from 38.5° to 41°C., appears to exert a stimu-

lating effect upon tumours of a low grade of virulence. Under these circumstances larger yields of tumours are obtained than in control experiments. On the contrary, incubation of virulent tumours at these temperatures seems to attenuate them.

6. The resistance of tumour cells to organic disinfectants is very high. It is possible, for example, to destroy the bacteria present in badly-infected tumours by means of potassium cyanide, without seriously affecting the virulence of the tumour on subsequent transplantation.

7. Tumours of high virulence and rapid development have a relatively high potassium and nucleo-proteid content. Tumours of low virulence and slow development show a low potassium and a high calcium content.

8. The chief evidence of the existence of immunity against cancer is as follows: Spontaneous recovery of mice from true tumours actually occurs. Those mice which have recovered are not re-inoculable with tumour material possessed of the same degree of virulence as that previously employed, and exhibit in addition a considerable resistance to subsequent inoculation of far more virulent strains. The re-inoculation of mice which have failed to develop fatal tumours shows a great reduction in the proportion of tumours, and inoculation for a third time has so far been unproductive of a single tumour. The serum of recovered mice apparently exercises a definite though slight effect on the small tumours of other mice when directly injected and also on tumour materials when admixed previous to inoculation. Mice in which tumours are already developing are, with few exceptions, immune to subsequent inoculation, even with a more virulent tumour, indicating the production of immune forces in the serum antagonistic to the development of cancer.

9. The injection of tumour materials incubated at such temperatures as to render development impossible, or of tumour materials previously treated with chemicals at such a concentration as to inhibit development, fails entirely to confer immunity on mice so treated.

10. The treatment of mice with increasing doses of nucleoproteids (extracted from the most virulent tumours) at stated intervals of time has so far failed to confer an immunity.

11. The process of immunizing mice against cancer appears to be analogous to that of vaccination against small-pox, the animals which recover from an attenuated form of the disease developing an immunity capable of protecting in the large majority of cases against injections of a more virulent cancer strain than that originally employed.

Investigations such as these undoubtedly promise well for a distinct advance in the rational treatment of cancer and we shall look to the farther outcome with interest.

Reference has been made to methods of treatment of cancer which have been much vaunted, but have proved failures. Doyen, as everyone knows, discovered in cancerous tissues a coccus, which he called the micrococcus neoformans. This he considers to be the true etiological agent in the production of new growths and, on this assumption, has prepared a serum for the treatment of such cases. A commission appointed to investigate his claims has reported adversely. Paine and Morgan (Brit. Med. Jour., 1906. Vol I. p. 740) treated nine undoubted cases of carcinoma by Doyen's serum without improvement. They inoculated 200 animals with the micrococcus neoformans and found that the injection of this organism produced a simple inflammatory reaction and never tumour-formation. They conclude that the micrococcus neoformans is present in cancers as well as other cocci, but that it has no etiological significance. As to the presence of this microbe in neoplastic growths there can be no doubt, for in this particular Doyen's observation has been confirmed by no less an authority than Metchnikoff, as well as by several others. Doyen's statement, however, that when inoculated into animals it produces tumours has been shown to be incorrect. The significance of the organism has by no means been determined. In this connection it is interesting to note the application of the treatment by means of vaccines to cancer. Sir A. E. Wright, the famous exponent of the "opsonic theory," undertook the treatment of five cases of carcinoma by his method of inoculating a sterilized and enumerated culture of the micrococcus neoformans (Journal of Laryngology, July, 1906.). In the first case, in a man of seventy-five, there was an ulcerating growth on the left tonsil, pillar of the fauces, the side of the tongue and wall of the pharynx There was a large mass of glands behind the angle of the jaw. Microscopically, the growth was a spheroidal-celled carcinoma. Improvement began at once and continued for five or six weeks. The disease then became stationary. This was the most striking of all the cases. Of the other four, two have died, one is stationary, and, one improved. The outcome of these investigations is perhaps not yet.

The Opsonic Theory.

The application of Wright's method of bacterial inoculation to the treatment of cancer, leads us to a consideration of the present status of the opsonic theory. So far as has appeared in the journals, little that is new has been brought forth. This much may be said, however:

that facts are steadily accumulating to prove the great value of Wright and Douglas' discovery. Treatment by the inoculation of bacterial vaccines has been applied to tuberculosis of the skin, bones, joints and lungs: to furunculosis, sycosis: to septicæmia, and malignant endocarditis: to typhoid fever: to pneumonia: to empyema: to cholecystitis: and to Malta fever. The results reported are in general favourable. It seems clear that in the treatment by the injection of bacterial vaccines by the method of Wright and Douglas we have a decided addition to therapeutics and a valuable contribution towards the explanation of immunity in at least certain cases. The opsonic theory may be said to have come to stay and is at last established on a thoroughly scientific and solid substratum of fact. It may be regarded as settled that opsonins are immune bodies contained in serum, absolutely distinct from lysins, agglutinins, precipitins, and antitoxins. They act by sensitizing, or "opsonizing," as it is called, the bacteria, and not by stimulating the activity of the leucocytes. Whether they are specific or not has not yet been satisfactorily determined. We know now, also, that there are opsonizing substances for other bodies besides bacteria (Hektoen, Jour. Amer. Med. Assoc., May 12, 1906. Middleton-Goldsmith Lecture), such as blastomycetes, trypanosomes, and red blood-corpuscles. Hektoen has found, for example, that the serum of convalescents from various infective disease, such as typhoid, pneumonia, and scarlet fever contains opsonins for human erythrocytes, and Eason (Edin. Med. Jour., 1906, Vol. XIX, N.S., p. 43) has described phagocytosis of red corpuscles under the influence of serum from patients with paroxysmal hæmoglobinuria. These observations throw light on the question of blood destruction in many infective conditions and on post-febrile anæmia.

Tuberculosis.

Probably everyone is now familiar with Koch's famous presentation on the subject of infection in tuberculosis. In view of the statistics of the German Hospitals he concluded that primary intestinal tuberculosis was so rare as to be practically negligible and, in addition, went the length of asserting that tubercle bacilli of bovine origin were innocuous to human beings. A storm of protest followed upon the publication of his conclusions and immediate steps were taken in various countries to test the accuracy of his statements, investigations which, from the nature of the case, broadened themselves into the determination of the comparative virulence of tubercle bacilli of various origins for different races of animals, and the paths which infection usually took. The investigations in England of Nathan Raw, among others,

were sufficient of disprove Koch's theory. The most recent work on this subject is that of Prof. E. von Dungern and Dr. Henry Smidt (Arbeiten aus dem kaiserlichen Gesundheitsamte. Bd. XXIII Heft II, 1906.) They find out what has been widely recognized before, that the bovine bacillus exhibits in a more or less marked degree a higher pathogenicity for experimental animals than does the bacillus of human derivation. This is true for bovines, sheep, goats, pigs, rabbits, dogs, cats, guinea-pigs, and monkeys. Consequently they point out, the view that man is relatively insusceptible to the action of the bovine bacillus involves the conclusion that he differs in this respect from all experimental animals hitherto studied. They determined to test the matter by experiments on anthropoid apes, the nearest relatives of man, choosing for this purpose two varieties of gibbon, the hylobates syndactylus and the hylobates agilis. They used cultures of bacilli of the bovine and of the human type, and the virulence was tested both by inoculation and feeding experiments. Three animals were inoculated subcutaneously with human bacilli, three with bovine bacilli, and two with bacilli of the bovine type isolated from pigs. The dose was 10mg., except in one case where it was 5mg. Their conclusion was that the gibbon is susceptible in an equally high degree to all the strains investigated. The infective process followed the same course in all cases. At the site of inoculation there was produced an inflammatory infiltration, which in a few cases showed retrogressive changes, but in the majority led to abscess and tumour formation. From the site of inoculation the infection spread by way of the lymph-channels. Eventually the organisms found their way into the thoracic duct and thence into the blood, the result being that the tubercular foci were found to be particularly abundant in the liver and spleen. The lungs were less affected and in some cases were free from disease. In only one were the bronchial glands enlarged and caseous; in this animal the lungs were markedly affected. The mesenteric lymphnodes were affected in only three cases. The lesions were unlike those found in human miliary tuberculosis in that they consisted of rounded necrotic foci composed of cellular debris, a sprinkling of leucocytes and large numbers of bacilli. In most cases there were no giant cells, nor was there any inflammatory reaction in the surrounding parenchyma. The lesions, in short, were of the most acute type. There was no difference between the lesion produced by the bovine type and those due to the human variety.

Three gibbons were fed with cultures of human bacilli. Each animal was given three successive doses of 0.2, 0.4, and 0.5 grms. Three others were fed with cultures of bovine origin. The first

received 0.1 grm., followed by a dose of 0.2 grm: the second received three doses of 0.15, 0.1, and 0.2 grm.: the third was given 0.4 grm. and subsequently a dose of 0.2 grm. Generalized tuberculosis could be produced by feeding in the gibbon but the duration of the disease is somewhat longer than after subcutaneous inoculation. Four of the six animals were infected, while the remaining two, which died 51 and 84 days respectively after the first feeding, showed no evidences of tuberculosis. The bovine bacilli proved to be as highly pathogenic as the human type. Again, the lesions were indistinguishable in either case. The formation of typical tubercles, however, with numerous giant-cells and a zone of inflammatory reaction, was more frequently met with in the feeding experiments than in the inoculation ones. This was probably to be explained by the longer duration of the disease, a smaller number of bacilli being able to penetrate the intestine. A point of considerable import is that in the animals fed with bovine bacilli the small intestines showed tubercular ulcers and the mesenteric glands were greatly enlarged and caseous, whereas in the animals fed with human bacilli no lesions could be found in the intestines or mesenteric lymph-nodes. In the latter case the primary lesions were in the lungs. The authors suggest that this difference may be an indication that the two types of bacilli when introduced into the system by the alimentary tract have a tendency to select different portals of entry. More experiments will have to be done to finally settle this point. The general conclusions arrived at by Von Dungern and Smidt are, that the gibbon is equally susceptible to the action of both types of bacilli, and in view of the near relationship of this animal to man, it seems probable, though it cannot be regarded as definitely established that a similar susceptibility to both varieties of the tubercle bacilli may be attributed to man. It may be remarked that these experiments go far to show that the brunt of the disease resulting from infection with the human bacillus does not necessarily fall upon the organ or tissue through which the organism gained entrance, corroborating some views to this effect that have been expressed before. It would look as if the tubercle bacillus of human derivation had the power of passing through mucous membranes without producing a local lesion. This, as all will admit, holds good for the nasal mucosa in inhalation tuberculosis, as well as for the intestinal membrane.

It has been fashionable to hold that tuberculosis of the lungs is due to the inhalation of the specific virulent bacilli directly into these organs. Years ago, however, Aufrecht, Ribbert, and Baumgarten adduced evidence to controvert this. Ribbert is particularly strong in the opinion that infection by inhalation takes place through the

naso-pharyngeal mucosa, thence by the lymphatics of the neck to the peribronchial lymph-nodes, and so to the lungs. In fact, not a few hold now that penetration of airborne bacilli into the lungs is difficult, if not impossible. Vausteenberghe and Grysez state that anthracosis, to quote an almost parallel case, is not produced in animals by making them breathe an atmosphere saturated with soot so long as they are prevented from swallowing the accumulations of the nose and pharynx The same thing applies to attempts to infect the lungs with tubercle bacilli by respiration. Calmette and Guérin of the Pasteur Institute at Lille confirm these observations and have enquired more particularly into the part played by intestinal infection. It will be noted that their work in certain points corroborates that of von Dungern and Smidt.

Calmette and Guérin have studied the question in kids and goats. The young were suckled by goats whose udders had been inoculated with tuberculous virus, human, bovine, and avian. In the older animals the infective material was introduced into the stomach by an œsophageal sound in order to obviate the possibility of infection through the upper air-passages. The result of these experiments goes to show that kids and goats, are very susceptible to tubercular infection, especially that of bovine origin, and moreover, that they readily contract tuberculosis by way of the intestinal tract. In the young, virulent bacilli, absorbed in small quantity, were retained for varying periods in the mesenteric lymph-nodes and might later infect the lungs. The bacilli in adults, however, produced almost immediately tuberculosis of the lungs. Similar results were obtained in bovines and rodents. In their opinion it would seem logical to infer that a similar state of things may obtain in man, and that von Behring is justified when he states that pulmonary tuberculosis in the adult results from the tardy evolution of an intestinal infection contracted in early life. They find that tubercular bacilli may pass the intestinal wall without producing any lesion. They are then taken up by phagocytes in the chyliferous vessels. Hence, they get into the venous circulation, and the dead or dying leucocytes, carrying the bacilli, and having lost their amœboid properties have a tendency to become arrested in the capillaries, particularly those of the lungs, which they block as a foreign body. Should these infection-bearing leucocytes pass through the pulmonary circulation they may be arrested in the capillaries of the meninges, joints, kidneys, and other structures. It is noteworthy, that their experiments showed that animals that had recovered from tuberculosis were rendered partially immune against subsequent tubercular

infection, thus suggesting the possibility of successful anti-tubercular vaccination.

Syphilis.

Following upon the demonstration by Schaudinn of a spirillar organism or spirochæte in the lesions of syphilis, a great impetus has been given to the study of this disease in all parts of the world. The general result has been to confirm Schaudinn's work in all particulars, and at the present time the general consensus of opinion seems to be that we have in the Sp. pallida the specific organism of lues. It is true that here and there a dissentient voice has been raised, as one would expect and even desire, but the evidence in favour of Schaudinn's contention has not been seriously shaken. A great number of workers have confirmed the presence of the Sp. pallida in the lesions of primary and secondary syphilis and in the diseased organs of tertiary syphilis. The histology of syphilitic lesions has been worked over anew. The pathogenesis of the disease has to some extent been revealed. The communicability of the disease to certain species of apes has been amply proved. Finally, we are beginning to see our way to a more rational therapeusis on the analogy of other infectious diseases by means of vaccines and antiluetic sera.

Schaudinn's observations as to the constant occurrence of spirochætes in syphilis has been confirmed by Neisser, Buschke and Fischer, Ehrman, Schlimpert, Beitzke, Danziger, Lipschütz, Petzold, in Germany; Dudgeon, Richards and Hunt, Sheamon, in England; Risso and Cipollina, in Italy, to mention by no means all. It seems to be fairly agreed that the spirochæta pallida presents distinctive peculiarities of its own and can be demonstrated with comparative ease in primary and secondary cases, and with more difficulty in the tertiary stage. For diagnostic purposes, scrapings may be taken from the primary sore, cutaneous papules and condylomata, and stained for the organism by appropriate methods. Material from enlarged glands may be removed by a syringe, or, again, smears may be made from the blood. In the last mentioned procedure examination should be very thorough, as the organisms appear to be scanty in the circulating blood. Most authorities point out that while a positive result is conclusive in favour of syphilitic infection, a negative finding by no means excludes the disease, owing to the comparative difficulty of discovering the spirochætes, which may be few and far between, to say nothing of the difficulty of staining them. In lesions other than those of syphilis the spirochæta pallida has not been found.

The distribution of the organisms is of interest. Ehrmann (Deutsche med. Woch., 1906, S. 1115) in two cases of chancre, in which the prepuce was indurated and excoriated, found that spirilla could be demonstrated in the nerves of the skin and subcutaneous tissue. They were to be found in the lymph-spaces and connective tissue enclosing the nerve bundles, within the nerve sheath and even between the nerve fibres. The organisms could be traced for some distance centripetally along the lymphatics and lymph spaces, thus indicating the possible line of transmission.

Schlimpert (Deutsche med. Woch., 1906, S. 1037) has investigated this aspect of the subject in the lesions of congenital syphilis in the newborn. Spirochætes were found in great numbers in the interstices of the connective tissue, particularly in the neighbourhood of the vessels, in the walls of the vessels also, but rarely in the blood stream. An intracellular position is the exception. Buschke and Fischer (Berl. klin. Woch., Jan. 1, 1906.) also, in an earlier communication, had noted this relationship to the vessels. They found the parasites in the walls of the vessels attached to the endothelial cells, whence they could be traced into the surrounding tissues. In the skin lesions the organisms were found in great numbers, lying definitely coiled up both within and around the capillaries. The spirochætes, as numerous observations have shown, are practically universal in distribution. They are, as might be expected, found in greatest numbers in the liver, often, also, in the spleen, in the kidneys, in skin lesions, less abundantly in the blood. They have also been demonstrated (Schlimpert) in the stomach, mesentery, mesenteric glands, gall bladder, common bile duct, peripheral nerves, thyroid gland, thymus, tonsils, tongue, and buccal mucosa, in the heart muscle (Danziger, Buschke and Fischer), lungs and adrenals (Danziger). These various researches would seem to indicate that the infective agent in syphilis is carried from the point of entrance by the lymphatics into the nearest lymphnodes and eventually to the blood, whence it is spread to all parts of the body, finally localizing in the tissue spaces of many different structures.

In the case of tertiary lues, Tomasczewski (Münch. med. Woch., 1906, S. 1300) demonstrated, in five out of ten cases examined, the spirochæta pallida. The organisms were, however, very few and were only discovered after hours of work. This fits in, it may be remarked, with what we already know as to the infectiousness of syphilis in the tertiary stage.

It will, perhaps, be opportune at this point to refer briefly to other views in regard to the etiological factor in syphilis. Flagellated

micro-organisms, provided with a nucleus and refractive ectoderm, have been found in the blood of various animals by more than one observer, but notably by Klebs and Dohle, Lösdorfer and Stassano. Such bodies were at first confounded with degeneration products of the red corpuscles but have been more recently determined with much probability to be protozoon in character. These organisms go by the name of cytorrhyctes and have been found in vaccinia and small-pox (Councilman, Magrath, and Brinckerhoff) and by Siegel in syphilis. Siegel thinks that such bodies can easily be differentiated from the products of cell-destruction. Siegel in 20 cases of syphilis examined found what he calls the cytorrhyctes luis in all, not in the first stage, but during the period of cutaneous efflorescence. They disappeared when mercurial inunction was practiced, nor could they be detected in healed cases. The organism could be inoculated into rabbits, and white mice. Siegel was enabled to grow the cytorrhyctes on human blood-bouillon and ascitic fluid bouillon. Apes could be inoculated with the organism and presented the lesions usually regarded as characteristic of experimental syphilis. Wechselmann (Deutsche med. Woch., 1906, S. 219), however, got similar lesions in a macacus monkey when inoculated with the blood of a rabbit not infected with syphilis. He suggests that the lesions were due to the action of a foreign blood, or else to blood parasites existing within the rabbit. Siegel's views are not accepted as yet by any other pathologist of note, nor have his observations been confirmed. Possibly, there may be some relationship between the cytorrhyctes and the spirochæta pallida, but this is for many reasons unlikely. No one as yet has made out more than one phase of development in the life history of members of the spirochæte family. It would be curious, however, if the popular classification of certain eruptive disease into the "pox" and the "small-pox" should prove to have a scientific foundation.

The place of the spirochæte in Nature is still under consideration. We know now, however, that there are a great many of these spirillar organisms, some of which are pathogenic and some not. In the former group we can place the spirillum of Obermeyer, the spironema of Schaudinn, and the spirochæte of African "tick-fever." Other spirochætes have been found in the skin and mucous surfaces, in ulcers, ulcerating new growths, fæces, and stomach contents, the best known of which is the spirochæta refringens, which are apparently harmless, or, as yet, have not been proved to be pathogenic. It is a matter of some interest that a spirochæte, resembling the spirochæta pallida, has been found in frambœsia or yaws (McLennan: Neisser, Baermann, and Halberstädter), a disease which has many analogies

with syphilis. Neisser and others, working in Batavia, make out, however, the following differences between syphilis and yaws. Like syphilis, yaws can be transmitted from man to the higher and lower apes, but unlike syphilis it cannot be transmitted from one ape to another. Again, animals infected with syphilis are also susceptible to framboesia. Hence, it is concluded that these two diseases are etiologically distinct.

The question whether spirochætes are to be regarded as animals or plants has attracted some attention. The frequent association of the spirochæta pallida with the cytorrhyctes in the blood of one and the same individual has suggested to some (Schütz. Münch. med. Woch., 1906, S. 543) that these two organisms may represent stages in the life-history of the same individual. The cytorrhyctes is generally regarded as protozoon in nature, while by many the spirochæta are thought also to be protozoon and related to the trypanosomes. Unfortunately as yet, it has been impossible to cultivate the spirochæta pallida on artificial media. Beer (Deutsche med. Woch. 1906, S. 1192) has succeeded in keeping it alive for thirty-three days in a moist preparation ringed about with vaseline and wax. He concludes that the spirochæta pallida is anærobic, and, moreover, could not detect any division of the organism or any multiplication. Koch, on the contrary found signs of division in the case of the spirochæte of "tick-fever." Considerable evidence has accumulated to show the relationship of spirochætes to the bacteria. Borrel found that the spirochæta gallinarum possessed many lateral flagella. Shortly after, Zettnow (Deutsche med. Woch., 1906, S. 376) demonstrated diffuse flagella in the spirochæta of fowls and of African relapsing fever. Novy and Knapp (Journal of Infect. Diseases, Vol. III), working with the spirillum Obermeieri, conclude that spirochætes are bacterial in nature. There is no evidence of a nucleus, blepharoblast, undulating membrane, or flagellum, structures which are readily seen in trypanosomes. A single long flagellum was found at the end of the sp. Obermeieri but it was unlike that seen in the known protozoa. Spirochætes when inoculated into the blood multiply rapidly, and can be detected in eighteen hours; while the growth of trypanosomes is much slower, requiring four days or more. Again, when trypanosomal blood is heated to 45° the organism is killed and disappears in less than thirty minutes. The spirochæte under the same conditions remains alive longer and when dead does not alter its form. Immune sera, too, are not readily produced by protozoa and, moreover, are weak and possess but little or no germicidal action. Novy and Knapp could, however, produce a high degree of immunity with the spirillum Obermeieri, and the blood of

hyperimmunized animals was intensely germicidal. Finally, rapidly-growing trypanosomes have an avidity for air, while spirochætes appear to be indifferent to it.

On the experimental side, Neisser, with his associates (Deutsche med. Woch., 1906, S. 1, 49 u. 97), has continued his studies on the transmissibility of syphilis to the lower animals. Syphilis can be communicated from man to the higher and lower apes and from one ape to another for a series of transfers. Whether the virus obtained from the higher apes is more virulent than that obtained from the lower apes was not definitely settled. The more recent the material used for inoculation, the more likely was one to get infection. The degree of infectibility appeared to depend on the amount of specific virus introduced. Only once did Neisser succeed in inoculating with material from a tertiary lesion, but even this qualified success is of great significance. By passage through animals the virus was rendered more powerful. The poison becomes generalized after 54 days. In a later communication (Ibid. S 493), Neisser finds that all syphilitic lesions, including the tertiary, providing that they are not necrosed or suppurating, contain the virus of syphilis and will produce typical primary effects when inoculated into apes. Syphilitic material taken from three cases of congenital syphilis, when inoculated, would reproduce the disease.

Indications are not wanting that in the near future we may be able to attain to a rational treatment of syphilis on the lines of active immunization. Spitzer (Wiener klin: Woch., 1906, No. 38) inoculated twenty persons suffering with syphilis with material taken from primary sores with the idea of bringing about active immunity. In seven, secondary manifestations had not appeared after two years. The injections caused neither local nor generalized manifestations. The experience of Metchnikoff and Roux at the Institute Pasteur is also striking and suggestive. An assistant in the laboratory was accidentally infected with syphilitic virus from an infected macacus. A Javanese macacus was inoculated from the assistant and became infected, the primary sore appearing in one month. In the ulcer formed Schaudinn's organism was found in great numbers. The assistant suffered no farther inconvenience and did not develop other manifestations of syphilis. Subsequently an aged woman, at her own request, allowed herself to be inoculated with virus taken from a macacus. No lesions of syphilis had developed after six months. While so few observations are, of course, inconclusive, they at least strongly suggest that the syphilitic virus is attenuated for man by

passage through the macacus, and further research may perhaps serve to show the efficacy of a syphilitic vaccine or attenuated virus in the prophylaxis of this disease. In this connection it may be mentioned that Metchnikoff and Roux have proved the efficacy of mercurial inunctions in aborting syphilis. Ointment of calomel (25 to 35 per cent.) if well-rubbed into the point of inoculation within an hour of infection will abort the chancre. Curiously enough sublimate does not seem to have this effect. A medical student, four macacus monkeys, and one chimpanzee, were inoculated with material from hard chancres. The student and one macacus were given an inunction at the point of inoculation of calomel ointment for eight minutes. A second macacus got the same treatment after twenty hours. Two other macacus monkeys were kept as controls. The two controls developed the primary sore in seventeen days. The macacus treated after twenty hours developed a sore in thirty-two days. The student and the first monkey did not develop a sore or any of the after manifestations of syphilis.

Glancing over the work done in regard to syphilis we find that it is a most hopeful field, and there is every likelihood that we have at last solved some of the more important problems connected with this widespread and perplexing disease. The pathogenesis and treatment will no doubt soon be placed on a thoroughly scientific basis.

ALBERT G. NICHOLLS.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The tenth regular meeting of the Society was held Friday evening, February 15th, 1907, Dr. F. G. Finley, president, in the chair.

OPERATED CEREBELLAR CYST WITH RECURRENT SYMPTOMS.

G. D. ROBINS, M.D. This case, a boy of six, was presented to the Society for fuller diagnosis. The patient was operated on by Dr. Archibald with relief of all the symptoms accompanying a cerebellar lesion. The symptoms, however, now showed signs of recurrence and the case was brought up for discussion.

W. F. HAMILTON, M.D.—Dr. Robins and Dr. Archibald are to be congratulated on the accuracy of their diagnosis in this case. I saw the patient at their request, and, so far as I could decide at the time, the diagnosis resolved itself, in the highest probability, into a right-sided cerebellar lesion, chiefly because of the situation of the pain, the

right-sided sixth nerve paralysis and also by reason of the deafness which, while not conclusive, was at all events suggestive of a lesion on that side. With respect to the views held in explaining the condition, it seems to me that the suggestion of trauma at birth is the most likely one, and inasmuch as all the cyst wall was not taken away, the recurrence may be due to a continuance of the pathological changes going on there with secretion and retention of fluid. With regard to the "cracked pot note" mentioned as having been elicited I would like to have some information.

F. R. England, M.D.—I would like to ask what the after-treatment of the cyst was, and what was done with the part which was not removed surgically.

G. D. Robins, M.D.—With regard to the cranial percussion I would say that one could immediately elicit in this case a high pitched somewhat tympanitic note which we regarded as of the 'cracked pot' type. With regard to the 7th and 8th nerve being pressed upon I did not get a sufficiently clear view of the nerves themselves at operation to state definitely as to this, but clinically there was undoubted evidence of pressure upon the right facial nerve. The patient developed a right facial palsy, within two or three days from the operation, which took several weeks to clear up.

H. S. Birkett, M.D.—I would like to ask if, at the time of operation, the exact extent of the cyst was definitely determined, also if the 7th and 8th nerves were in any way pressed upon. The ear symptoms to me appear rather anomalous—a case presenting such definite cerebellar symptoms as this did without some involvement of the 8th nerve is not compatible with the present condition. Why the symptoms should be purely of an obstructive form is more than I can explain and it seems to me that if this cyst were so large as to press upon these nerves we would find more definite symptoms not only in the 8th but also in the 7th.

E. W. Archibald, M.D.—The cyst was egg-shaped; it represented evidently a ballooning out of a limited area of the pia-arachnoid. It extended so far anteriorly that I could not dissect it completely away, but contented myself with cutting and tearing off as much as possible of the wall after evacuation of the fluid; and at the conclusion there was still left small fragments which I could not reach. I closed the dura but apparently insufficiently, as the swelling at the back of the head points to the escape of cerebro-spinal fluid, under the skin and soft parts.

E. W. Archibald, M.D.—Clinically speaking, it is not uncommon at all for the 8th nerve to suffer under pressure and the 7th nerve to

escape. In drying up a little blood far anteriorly the facial was irritated, as was evidenced by facial spasm; and in fact the child suffered from a marked degree of facial palsy for a couple of weeks afterwards.

HEART SHOWING FOUR AORTIC CUSPS.

P. G. White, M.D., showed this specimen.

John McCrae, M.B.—An interesting question in connexion with this specimen is whether the condition is congenital or the result of inflammation. The fact that one of these valves has ruptured sometime long past, that there is aneurysm, and that these valves are thickened, all point to an extremely severe inflammatory change, and suggest inflammation as the cause of the formation of a perfect fourth cusp. On the other hand congenital cases are quite definitely known, and I do not suppose that a more definite pronouncement can be made upon this case. Looking at the specimen without bias, it seems to me that the evidence is slightly in favour of the inflammatory rather than the congenital origin of this fourth cusp.

P. G. White, M.D.—On examining the specimen thoroughly both Dr. Duval and I were of the opinion that it must be congenital for two reasons,—first, the greater part of the extra flap is of the same structure as the other three cusps. It is true that some inflammatory change has taken place, somewhat altering its shape; but this is limited to one corner; then again on measuring the free border of this cusp it is found to correspond exactly with the measurement of the free border of the three cusps. For these reasons its congenital nature seems convincing.

NOTES ON THE PATHOLOGY OF ADENOIDS WITH REPORT OF CASES OF ADENOID TUBERCULOSIS.

E. Hamilton White, M.D., read the paper of the evening. Seventy-five adenoids from the Nose, Throat and Ear Department of the Royal Victoria Hospital had been examined, five of which were definitely tuberculous. In four of these the tuberculosis was regarded as primary in the adenoid. In the paper the significance and importance of tuberculosis in these tissues was especially dealt with.

F. R. England, M.D.—I wish to congratulate Dr. White on his excellent paper, and, I think, if it is read carefully, a great deal of practical good may be gained. I was impressed by the fact that Dr. White considers adenoids and hypertrophied tonsils as symptomatic and only an index of a general lymphoid state, Accepting this view of the condition, our duty must not stop with removal of the adenoids and enlarged tonsils; we must get at the general condition and treat the

patient constitutionally; we must recognize this tendency to lymphoid hypertrophy and treat it early, before the case comes to operation.

An interesting question dealt with in the paper was the function of adenoid tissue and especially the function of the tonsils.

It was held that they are not only absorbent glands but that they are capable of exercising a protective influence against systemic infection by taking up and overcoming the tubercle bacillus and other pathogenic organisms. This would seem to be a very important matter and deserves careful consideration. If the tonsils are exercising a protective influence against systemic infection it becomes a very important question to what extent they must be hypertrophied or diseased to warrant their removal. Recently the tonsils have been considered as the infecting focus in certain cases of typhoid fever. Who can say that they may not frequently stand as sentinels and protect us against disease?

W. S. Morrow, M.D.—Many of the points discussed this evening are points about which I have questioned myself recently. I cannot close my eyes to the fact that one sees remarkable improvements following operations on adenoids and tonsillotomies. I have often asked myself how it was, if these lymphoid structures acted more or less as filters and destroyed the germs that it was a good thing to remove them, as is certainly the case. The paper read by Dr. White has done much to make things clear to me. I was interested in the suggestion that the tonsils in taking in bacilli may possibly produce antitoxines that protect the body against tuberculosis elsewhere. This recalls to my mind the statement of a Breslau professor who, in referring to medical superstitions, remarked that one was the idea that tuberculous adenitis was likely to be a precursor of tuberculosis elsewhere. He asserted that people with tuberculous glands in the neck, for instance, are not more subject to tuberculosis in the lung or elsewhere than those without enlarged glands. There has been nothing in my experience to contradict this opinion.

John McCrae, M.B.—About the question of tuberculosis invasions there are two or three facts which I have lately come across which are of interest. Pathologically speaking, the finding of a tuberculosis higher than the neck is not frequent. So difficult is it to get the tonsils out from the body incision; two or three facts are of interest, based upon the study by Dr. Adami and myself of some 1,000 autopsies at the Royal Victoria Hospital; tuberculosis, past or present, existed in 41.7 percent, which I think may be taken as a fair estimate of the population of an American city; there were 94 cases of latent tuberculosis and 150 cases of healed tuberculosis amongst those thousand people. Where

caseous and calcified glands are in question, we found it an interesting point that the lung was affected very much in advance of any other region. So much so that in cases where the tuberculosis was healed or latent, the lung lesions were very much more frequent than those of the abdominal and thoracic glands combined, which is rather different from what one is led to expect: and yet so carefully have the thoracic glands been examined that as far as they are concerned, we may lay a good deal of certainty upon these figures.

E. Hamilton White, M.D.—In the matter of etiology I was unable to give any very definite cause of hyperplasia in the adenoid. The matter is as yet wholly in debate, and my object was rather to bring before you the views that had been suggested than to urge the importance of any single etiological factor. Hereditary predisposition and a low vitality would seem very important, but there is no single etiological factor to explain all cases. Each varies in the combination of the factors leading to enlargement and in some the cause is quite unexplained. As to whether in removing the tonsil or adenoid we remove a protection against infection, we can definitely say that we do not. After removal of a tonsil the site is covered over by mucosa, probably much less penetrable than that of the tonsil, certainly no more so. The tonsilar reaction to infection is inflammatory and this is equally present in the walls of the tonsilar fossa. There no longer remain the crypts and pockets which harbour infection, and prevent it being carried away by the mouth secretions.

H. S. Birkett, M.D.—This paper is largely a pathological one, and I had hoped that those directly interested in the subject would have opened the discussion. Some two years ago, when the subject of tuberculosis of the lymphoid tissue was under discussion, I thought that perhaps in the large amount of material at our disposal some facts might be gained along this line. Dr. White was good enough to undertake this and the result of his arduous work has been very satisfactory, results which seem to me to make a plea for the more general recognition by the general practitioner of the lymphoid tissue as a channel of infection, not only as it exists in the pharynx, but also in the naso-pharynx. I think when this source of infection and the conditions met with in these regions are more generally recognised that we will meet with fewer conditions as a result of absorbed material. To exemplify: one only has to consider the number of cases of cervical adenitis for which operative interference is undertaken: in the majority the tonsils are considerably enlarged and if not enlarged they are pocketed and contain caseous material. This morbid process is met with almost as frequently

in the lymphoid tissue of the vault of the pharynx as in the faucial tonsils. Such cases, when operated on, do not always result in the absorption of the inflammatory products as evidenced by the enlarged cervical glands, because, I believe that the tubercular deposit which has found its way through these channels of infection is definitely located within the glands, where, however, the glands are enlarged and removal of adenoids or tonsils is followed by improvement. I believe that the condition is simply one of absorption of the toxines rather than the actual tubercle bacilli. Another important focus of infection which is very generally overlooked is a form of angina attacking the supratonsillar fossa which on examining in the usual way nothing is to be seen of the centre of infection, because it lies well within the supratonsillar fossa and is covered by the anterior pillar of the fauces. If this pillar is carefully retracted one will frequently find a large mass of caseous material lying in the fossa and the removal of this source of infection is very often the result of the patient being free from attacks of a similar nature. These attacks evidence themselves by some general symptoms, attacks of so-called grippy throat, very often associated with articular pains and sometimes regarded as the starting point of articular rheumatism. Another point to which I wish to refer is a condition to which Boulay and Heckel have given the name "adenoidism." This condition is simply the absorption of toxines from the retained secretions in pockets in the tonsils and very often from the same pathological conditions found in the vault of the pharynx. In many cases the adenoid is of very small proportion and upon its removal a very marked improvement in the general health of the patient takes place, so that I believe in many of these cases where the adenoid tissue is not sufficient to obstruct nasal respiration, the improvement in the patient's general health after removal is not due to the establishment of nasal respiration as is most generally accepted, but to the removal of a possible centre of infection.

UNUSUAL VENTRAL HERNIA.

G. E. Armstrong, M.D.—I would like to make mention of rather an unusual case of ventral hernia, fuller details of which I intend to publish later. The patient was a rather stout woman 53 years of age. The hernia was known to have been present for some time. Five years ago she was in the Montreal General Hospital under my care for carcinoma of the breast. The breast was removed, and there was no sign of recurrence found at the autopsy. Hernia was present at the time she was in the Hospital, but she refused to have anything done for it. The day before admission to the Hospital she did a hard day's

work ironing, and then, apparently, took a hearty supper. About 11 o'clock that evening she complained of severe abdominal pain. Her physician saw her at 2 o'clock the following morning, recognized the gravity of the condition and brought her to Montreal by the first train. Vomiting was constant—the vomitus consisting of a dark brownish fluid. Enemata were at first returned clear, and later were retained. When she arrived at the Hospital she was moribund, cold surface, feeble pulse, unable to answer any questions, restless, and distressed. The hernia was about the size of a Rugby foot-ball, very tense, dark in colour, large prominent veins running across its surface. On making an incision, gas and a quantity of the same dark fluid poured out through the opening. The sac contained 7 or 8 feet of small intestine, the cæcum, ascending transverse and descending colon, the sigmoid and the whole of the stomach except the cardiac end. The lesser curvature of the stomach was perforated just to the right of a vertical line drawn down from the cardia. The perforation would just admit the end of a finger. The whole of the lesser curvature and gastro-hepatic omentum seemed bruised and ecchymosed. Quantities of imperfectly masticated onions and potatoes were found in the sac, and poured out through the opening in the stomach. At the autopsy there was no evidence whatever of gastric ulcer, and it would seem that here we have an instance of gastric perforation not due to ulcer, but to the chafing against the sharp border of the hernia ring. The immediately exciting cause very likely was the taking of a hearty meal after a hard day's work, and the acute distension arising from the imperfect digestion of this badly masticated food.

P. G. White, M.D.—The opening through which this hernia came was in the middle line due to a separation of the recti muscles and 5 cm. above the umbilicus. The pyloric half of the stomach was within the sac and was ruptured along the lesser curvature, the rupture being entirely within the sac, and the peritonitis, which was acute, was limited entirely to this part. The tissue around the rupture was very dark and looked somewhat gangrenous, but this was due to the staining of the tissue by the black contents of the stomach. The edges of the rupture showed microscopically absolutely no inflammatory change and there was no evidence whatever of gastric ulcer.

The eleventh regular meeting of the Society was held March 1st, 1907, Dr. F. G. Finley, president, in the chair.

Dr. W. F. Hamilton presented a living case of enlarged heart in a boy aged eleven.

E. S. Harding, M.D., read the paper of the evening, dealing chiefly with the springs as found at Caledonia, Ontario. This paper appears on page 250 of this number of the Journal.

Ridley MacKenzie, M.D.—We are indebted to Dr. Harding for bringing before us this interesting account of these waters. I had the pleasure of visiting these Springs, and have used one of the waters for quite a long time. The influence of these waters on the alcoholic is most interesting.

J. Alex. Hutchison, M.D.—We owe something to Dr. Harding for bringing this subject before us in this scientific way. I do not think anything of this kind has come before our Society in recent years, and it certainly is a subject deserving our attention.

W. F. Hamilton, M.D.—I was interested in Dr. Harding's paper and was watching for any remarks he might make regarding the untoward effects of the excessive use of these waters, particularly the sodium chloride spring being followed by œdema. It would be interesting to know whether such cases were at all associated with the renal disease, with respect to the treatment of arthritis and arthritis deformans. I think I recognise in his remarks a reference to one of my own cases, a young lady I had treated and who had decided to go to Caledonia Springs. On her return, I was greatly pleased with the change in her joints, and certainly it was a most salutary one. While we all recognise that these cases are progressive, yet some mitigation of their suffering is at all events to be encouraged. The effect of these waters on the alcoholic is most interesting.

F. G. Finley, M.D.—I think that most of us appreciate the fact that many rheumatic cases are greatly benefitted by this treatment, yet one hesitates to advise individuals to go to such springs unless a competent doctor is in charge to regulate the treatment.

E. S. Harding, M.D.—I wish to thank the members for their kind attention. As to the œdema I did not particularly note the renal conditions, but attributed it to the gastric disturbances which came on early in the course of the treatment with constipation. One rather interesting feature was the frequency of gastro-enteritis, but whether this was due to the waters or to hotel environment, etc., I could not determine.

James Bell, M.D.: "Rupture of the Subclavian Artery and Brachial Plexus by Direct Violence." The report of this case will be found on page 267 of this number of the Journal.

J. Alex. Hutchison: "Fatal Perforating Gastric Ulcer and Shock Simulating Cerebral Hæmorrhage." The report of the latter case will be found on page 270 of this number of the Journal.

F. G. Finley, M.D.: The case was rather a puzzling one to me; the man was pale, as if he had hæmorrhage, but we were unable to find any evidence of it. The abdominal condition, which probably caused the death, the hæmorrhage from the spleen, really gave no symptoms of trouble there.

F. R. England, M.D.: I think the gross injuries received were quite enough to account for death; the severe shock and the breaking of so many bones would suffice, to my mind, to explain the fatal ending.

With regard to the case of the fatal perforating ulcer, one feature of interest, it seems to me, is the rapidity with which it proved fatal, within 30 hours. We are all familiar with gastric and duodenal perforations in which patients come to us with a general peritonitis 24, 48, 60, and even 70 hours after, and on many of them, even in these late stages of this condition, we operate and have recoveries. What struck me was, that although this man had had no evidence of perforation for five or six hours, presumably after his meal, that he had had large doses of Epsom salts, or some other saline, given repeatedly in the belief that he had intestinal obstruction, and taking that fact in connexion with the fact I have mentioned that many cases recover from operation after much longer periods, one cannot help thinking that this may have had something to do in bringing about such a rapidly fatal result. In recent military campaigns it has been noted that men have recovered even after being shot through the stomach and intestines, and this is accounted for by the fact that these men on the march have been in a comparatively fasting condition, and that these wounds had temporarily closed before anything was put into the viscera to escape into the peritoneal cavity. This impresses me all the more because a very near relative of mine died under similar circumstances, within less than 20 hours. The symptoms were sudden and acute and very active treatment was adopted, the administration of violent cathartics, even croton oil, and persistent enemata. In my personal experience of these cases, I do not know that I have ever had occasion to see perforations end so rapidly as in that case and the one Dr. Hutchison has reported to-night. In both these rapidly fatal cases a great deal had been given by the mouth, in the nature of purgatives.

Dr Hutchison: In the case of shock, I quite agree with Dr. England, that with a myocarditis and endocarditis, and such very severe injuries there must have been severe shock, and all this was ample cause for death, apart from the question of cerebral hæmorrhage or rupture of spleen. One would also expect definite local paralysing conditions from hæmorrhage of the middle meningeal artery.

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FATAL PERFORATING GASTRIC ULCER.

BY

J. ALEX. HUTCHISON, M.D.,
Montreal.

C. C., aged 38, labourer, was admitted to the Montreal General Hospital on December 7th, 1906 at 9.15 p.m. complaining of pain in the abdomen and obstinate constipation.

The illness began December 6th, at 5.30 p.m., 28 hours before admission, with a sudden, severe pain in the upper abdomen after lifting a heavy bale of jute. Patient stopped work, walked home and went upstairs. He took tea and vomited it, also some bright red blood. Pain continued, growing more severe; bowels refused to move in spite of drachm doses of magnesium sulphate every hour and numerous enemata; the injections were quite ineffectual, except that with some of them a little dark blood was passed. No more vomiting, no chills. Increased abdominal distension during last twelve hours. Patient sent to hospital for laparotomy as a case for possible intestinal obstruction.

Personal History.—Always strong and healthy; no previous attacks like present; no history of "indigestion" or "stomach trouble." Does not use alcohol to excess.

On admission.—Well nourished muscular man; restless, evidently suffering considerable abdominal pain. Temperature $102\frac{2}{5}$; respirations 28; mucous membranes and nails blanched; hands and feet cold; no pulse felt in either radial; heart sounds only faintly heard with stethoscope. Patient apparently moribund, facial expression rather one of hæmorrhage than peritonitis; considerable struggling for breath and use of extraordinary muscles of respiration; orthopnœa at times. Tongue parched and covered with brownish coat. Abdomen greatly distended, symmetrical, generalised resistance; no rigidity; general tenderness. Movable dulness in flanks and lower abdomen, distinct fluctuation wave; spleen not palpable. The case was considered to be

probably rupture of small intestine or mesenteric vessel with hæmorrhage.

Rectal salines with brandy were given, hot water bottles, hypodermic injections of camphor and strychnine but with no effect. Patient died struggling for air about one and a half hours after admission.

The autopsy, performed by Dr. Duval, revealed a gastric ulcer with perforation (pyloric) and acute general peritonitis.

The stomach in situ showed on the anterior surface of the pylorus near the lesser curvature a sharply defined more or less circular perforating ulcer; the orifice admitted the tip of the little finger. The serous coat of the stomach presented a stellate puckering about the perforation. On opening the stomach the ulcer was seen as a sharply defined heaped-up mass with a slit-like opening 4 mm. wide and 1.3 mm. long. The edge of the ulcer is perfectly smooth, regular and of paper thinness. There is no evidence of its recent perforation. Folded over the opening are two laterally opposed mucosal folds which act as a sort of valve to the opening. The stomach contents are free from blood as also are the intestinal contents.

I am indebted to Dr. T. R. B. Nelles for this case report. The case was sent in to hospital from the practice of Dr. DeJersey White.

A REPORT OF TWO PATIENTS OPERATED ON FOR DEFORMITIES RESULTING FROM TUBERCULOUS DISEASE OF THE HIP.

BY

A. MACKENZIE FORBES.
Surgeon to the Children's Memorial Hospital, Montreal.

The two boys now before us (M.B.) and (J.T.) whose ages are six and ten years respectively had suffered from tuberculous disease of the hip for some years. They both had been treated under various conditions and probably in various ways, but I should judge usually by extension and rest in bed. While suffering from hip disease they both developed deformities which more or less commonly follow this disease.

The younger of them (M.B.) was first brought to the Children's Memorial Hospital in July 1904. The history given then, stated that he had suffered from left hip disease, and, later disease of the right hip: that in December 1903 examination had showed a pathological dislocation of his right femur; that the left hip was ankylosed and

Read in abstract at the Montreal Medico-Chirurgical Society, March 15th, 1907.

the left lower extremity was in everted position. Shortly after this examination was made the head of the right femur was excised.

After admission to the Children's Hospital he was treated by rest and extension in a plaster of Paris Spica, flexion of the right femur having first been reduced as far as possible under an anæsthetic. This treatment was continued until January 1905, when it was felt that the disease was arrested. The following notes were taken at that date.

The right femur is almost fixed in the flexed position. The head of the bone has been excised. On extending this extremity to the same plane as the trunk, a lumbar lordosis of about 1½ inches appears. The left hip is almost completely ankylosed in an everted position. It is not markedly flexed.

When the patient attempts to walk, it is noticed that locomotion is performed by the right lower extremity alone. The left foot, which is held in a strongly everted position, is simply dragged after the right foot, serving only as a pedestal on which the patient stands while he advances the right foot.

The boy while standing in a position of rest places all his weight on the left foot, and on the toes of his right foot, his right heel being elevated from the ground, because of both real and apparent shortening of the right lower extremity. This apparent shortening is due to flexion of the right femur.

Repeated but unavailing attempts were now made by non-operative measures to increase the range of motion at the right hip-joint and to reduce the flexion.

On June 1st, 1905, a Gant's sub-trochanteric Osteotomy was performed and the result, over one and a half years after the operation, can now be judged by the examination of the patient. You will see that he now manages to get about fairly well, you will notice that he has still over one-half inch shortening on the left side but that this is actual and not apparent shortening. The head of the left femur is pathologically dislocated upwards. Bryant's Line on the left side is about ¾ inches shorter than on the right side. The right femur is slightly moveable, but the left is almost completely fixed.

If you will now turn your attention to the older boy (J.T.), who was referred to the Children's Hospital during March 1905 by the Charity Organization Society, I will say that on admission it was found that his left femur was flexed almost to a right angle with his trunk. On extending this thigh to the same plane as the trunk, 1¼ inches of lumbar lordosis was produced. The left lower extremity had an apparent shortening of more than 1¾ inches. There was a pathological dislocation, upwards, of the head of the left femur.

In June, 1906, after all ordinary efforts had been made to correct the flexion of the left femur, and after it was decided that there remained no active disease at the hip joint, a Gant's sub-trochanteric Osteotomy was performed and the patient placed in plaster of Paris.

On examination to-day you will see that the patient's flexion has been reduced and there remains only 1¼ inches actual shortening with little or no apparent shortening.

The efficacy of Gant's sub-trochanteric osteotomy for the correction of such deformities as flexion, adduction and version of the femur is demonstrated by the examination of these two patients, but, more important than this, one cannot fail to be impressed with the necessity of maintaining the femur of the affected side in its normal position of extension, also in moderate abduction and eversion during the progress of tuberculous disease at the hip. As patients suffering from hip disease are frequently brought before the surgeon, only when flexion and adduction have taken place, an attempt to immediately reduce these deformities, even under an anæsthetic is suggested. This is now the almost universal practice amongst orthopædic surgeons.

This reduction of deformity should be followed by complete fixation in the corrected position. The experience at the Children's Memorial Hospital seems to prove that patients who have suffered from deformities which have proved difficult to correct, and in which it is difficult to maintain the correction, are best treated at first in the abduction splint of Mr. Robert Jones, of Liverpool. Such may later be treated with a plaster of Paris Spica, as may most other patients suffering from hip disease uncomplicated by abscess.

SERIES OF FIVE CASES OF CAESAREAN SECTION.

BY

H. L. REDDY, M.D., L.R.C.P. Lond.
Physician Accoucheur to the Women's Hospital, Montreal.

Case I.—Mrs. R., II. para, aged 33. Admitted to the Women's Hospital November 10th, 1905.

Personal History.—In her last confinement craniotony was performed by Dr. Holmes of Glasgow, on account of contracted pelvis, and she was told that if pregnant again she would have to have a Cæsarean operation.

Present Condition.—Patient a small but fairly well nourished woman; height 4 ft. 11 ins.; weight 112 lbs. Systems normal. Child calculated to weigh about 7½ to 8 lbs., and probably a female. Men-

suration gives ext. conjugate 16 cm., or the c.v. 7 cm. (2¾ ins.); the intertrochanteric measurement being the only one short, 28 cm. instead of 32 cm.; the others normal. As the patient had come into the hospital for a Cæsarean section it was decided to wait until labour set in.

November 19th. Labour began. At 9.39 p.m. the operation was begun, and was completed in forty-seven minutes. She was delivered of a female child weighing 8½ lbs. Patient was sterilized at her request.

Diameters of child's head:—Sub-occipito-bregmatic 10 c.m. (normal 9.5); occipito-frontal 12 cm. (normal 12); occipito-mental 13 cm. (normal 13); biparietal 9.5 cm. (normal 9.5).

The patient made an uneventful recovery, out of bed on the 15th day, and out of the hospital on the 35th day. A small stitch abscess in the skin delayed her a few days longer than usual in the Hospital.

Case II.—Mrs. L., V. para, aged 30. Admitted to hospital November 29th, 1905.

Personal History.—Her first confinement was a very difficult one with forceps. The child is living but suffers with severe epilepsy as a result of head injury at birth. The second and third children did not survive. Symphisiotomy was performed in the hospital in September 1901, and was successful, although the child died later from inanition. She underwent an operation for gall stones in the Montreal General Hospital in 1902. Miscarriage at three months in 1904.

Present Condition.—Patient is a large well built woman 5 ft., 2 in. in height, weight 165, normal child about an average size male. Mensuration shows:—ext. conj. 17.7 cm., c.v. about 8.2 cm. (3⅜ in.); other measurements normal. Patient desires to be rendered sterile to avoid future trouble.

On December 19th, labour began. At 11.45 p.m. operation was begun, and was finished in 50 minutes. There was a layer of adipose tissue about three inches thick under the skin, and this was the only case of the series that gave us trouble. One of the skin sutures becoming infected, conveyed the infection to the buried sutures, giving a great deal of trouble; and healing was not complete when I last heard from her in January, 1907, probably on account of the buried silk sutures in the uterus being in turn infected. The child weighed 7½ lbs. and is now living, a fine healthy boy.

Case III.—VII. para, aged 37. Admitted to hospital March 15th, 1906, in labour.

Personal History.—She had six children at full term, the successive labours being gradually longer and more difficult.

Present Condition.—Patient is a healthy, well nourished woman, 5 ft., 4½ in. in height. Has been ten hours in labour before being admitted to hospital.

Mensuration. ext. conj. 19 cm., c.v. 10 at brim and 8 cm. in cavity, other measurements about 2 cm. short of normal.

The position of the child was R. O. A., with the occiput riding on the symphysis, and unable, on account of its size, to engage at the brim. After an additional nine hours, labour with the pains strong and the os undilated, it was very doubtful whether more damage would not have been done to the soft parts, and the death of the child resulted, had a forcible delivery with forceps been undertaken. The patient being willing. Cæsarean section was performed, and at her request she was sterilized. The operation was finished in one hour.

The child, a male, weighed 10 lbs., 6 oz. The measurements of the head were as follows:—biparietal 10 cm., occipito-bregmatic 10.5 cm., circumference 38 cm. (normal 34.5 cm.).

Recovery was uneventful, and mother and child were discharged in perfect condition on the 21st day.

Case IV.—M. P., aged 22, Primipara. Admitted to Hospital March 13th, 1906.

Personal History.—She suffered from hystero-epilepsy after menstruation began, but apparently there were not very many seizures.

Present Condition.—Patient is a fairly well nourished girl five feet in height; weighs 101 lbs.

Mensuration. ext. conj. 17 cm., c.v. 8 cm., other measurements 2 cm. shorter than normal.

Labour began April 15th. After 44 hours of labour, which steadily became more severe, the os was undilated, the cervix not fully taken up, and the head not engaged at the brim. The patient consented to Cæsarean Section as being the least dangerous operation for her. She was sterilized at her request. The operation lasted 56 minutes. The child, a female, weighed 5 lbs. Mensuration of head showed all the diameters less than normal by from 1 to 2 cm. It died in three weeks from inanition. The mother was discharged from hospital May 26th, in perfect condition.

Case V.—Mrs. M., aged 26, primipara. Admitted June 26th, 1906, in labour.

Personal and family histories normal.

Present Condition.—Patient was a large well developed woman, height 5 ft., 6 in.; weight 145 lbs. Systems showed nothing abnormal. She had been in labour 30 hours before admission to hospital. Repeated

efforts at extraction with forceps were unsuccessful. The child was large and alive. An uncle, a priest, who was present, forbade any operation to destroy child.

Measuration. Ext. conj. 18 cm., c.v. 9 cm., other diameters slightly contracted. The head was not engaged in the brim.

Cæsarean Section was performed, and a living child born, although it did not survive. It weighed 11 lbs., 4 oz. The operation lasted 46 minutes. After it was over and the patient removed, the nurse in charge of the sponges claimed that there was one sponge missing which could not be found. On June 27th, the patient complained of a good deal of abdominal pain, and apparently there was some dulness in the left flank. It was decided to re-open, which was at once done, but no sponge had been left in abdomen, and it was closed. The patient made an uninterrupted recovery, and left the hospital on the 28th day. This patient was not sterilized.

FOUR RATHER UNUSUAL CASES OF ACUTE MASTOIDITIS.

BY

GEO. H. MATHEWSON, B.A., M.D.

Oculist and Aurist to the Montreal General Hospital.

Acute mastoiditis is unfortunately quite of common occurrence in our changeable climate and it is only because the following cases are a little out of the ordinary that I venture to bring them to your notice.

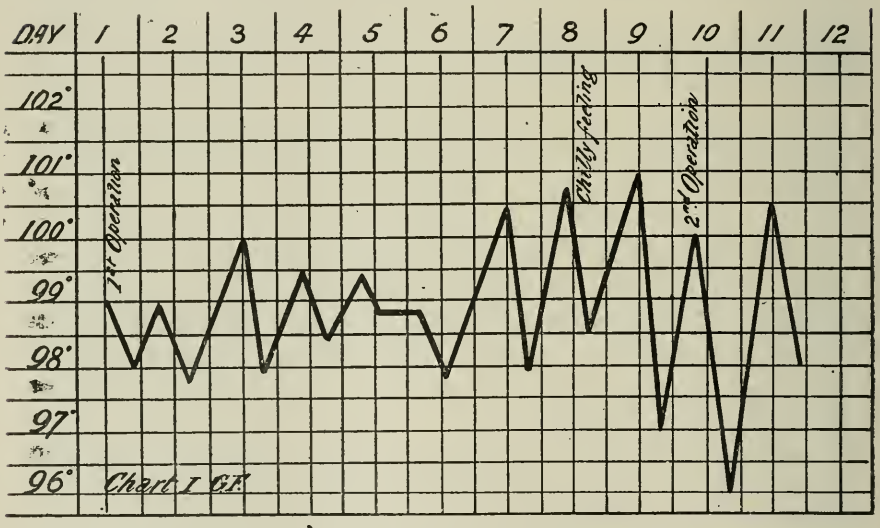
Case I.—Acute mastoiditis complicated by thrombosis of the lateral sinus. Operation. Recovery.

On Dec. 7th, 1906, G. F., an Italian labourer, 45 years of age, consulted me at our out-patient clinic on account of pain and swelling behind the left ear. Three months previously the trouble began by an attack of severe pain in the ear followed by the discharge of pus from the meatus, and four days before he came to the clinic he began to have pain behind the ear, *i.e.*, in the mastoid process. As examination showed that there was a purulent discharge from the ear, with œdema of the soft parts over the mastoid, and great tenderness on digital pressure over the mastoid antrum, he was admitted to the ward and an operation was performed the same night.

On making an incision through the soft parts, a considerable collection of pus was found beneath the periosteum and as soon as the cortical bone was penetrated the mastoid process was seen to be largely destroyed, the soft bone being replaced by pus and granulation tissue. This debris was carefully removed, leaving a large cavity in which the

lateral sinus was seen to be exposed for about one-third of an inch. There were a few granulations on the sinus itself, but it was quite soft and readily compressible.

The patient recovered promptly from the immediate effect of the operation, but as time went on he did not brighten up and improve in general health, but looked dull and apathetic, while his appetite also was poor. On the sixth day after the operation, (Dec. 13th) his temperature took on a septic type running from 97 4-5 to 100 3-5. On Dec. 14th, it fell to 98 1-5, only to rise again to 100 4-5, while on Dec. 15th it fell to 97 and rose sharply to 101. This temperature curve, together with the appearance of the man and the fact that on Dec. 13th he had chilly feelings, made me decide that thrombosis of the

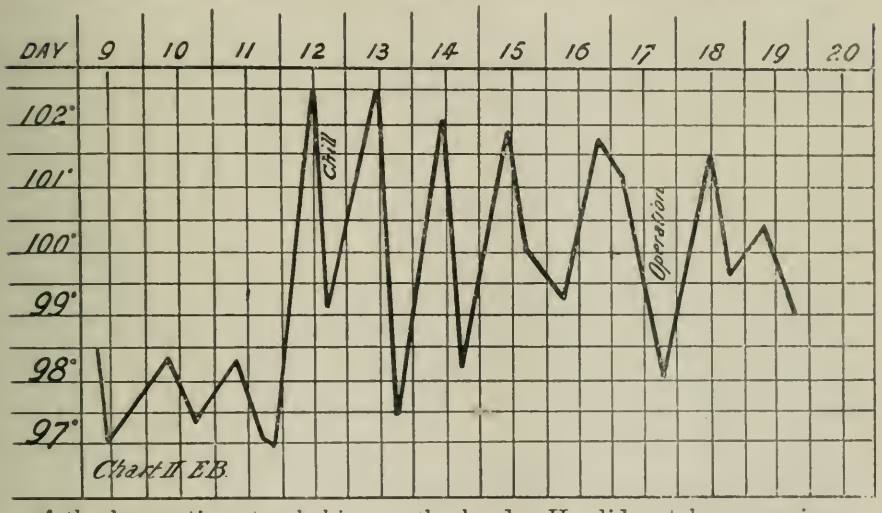


lateral sinus had taken place and on Dec. 16th, under ether anæsthesia, I exposed the sinus for about an inch and found it to be quite hard to the touch. When a longitudinal incision was made in the exposed portion of the sinus, a firm thrombus was seen to completely occlude its lumen. I removed the clot by curetting and as I reached a point near the superior knee of the sinus I got a drop or two of thin pus, and then the blood began to flow. I packed with gauze and then re-established the flow of blood from the lower end of vessel, and then packed the whole wound with iodoform gauze. On the day following the operation the man was seen to look much better, his appetite improved and he said he felt well. On the 3rd and 4th of January a rise of temperature occurred, but as the man continued to look and feel

very well, it was thought to be due to some cause apart from the operative wound, and was in fact found to be due to a boil on the leg. His condition steadily improved and he was discharged on January 21st.

Dr. Duval reported that the pus from the mastoid contained streptococcus pyogenes.

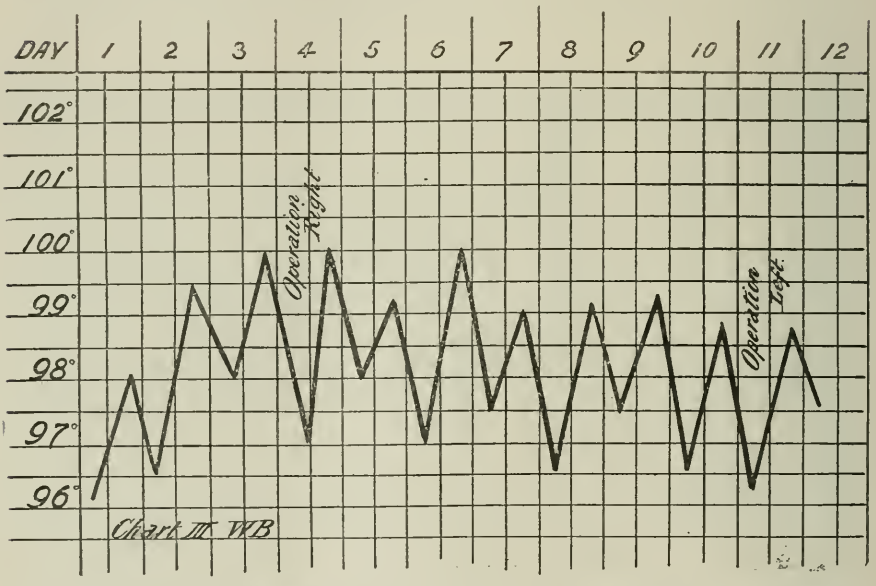
Case II.—Mastoiditis complicating Fracture of the Base of the Skull.—On Nov. 12th, 1906, E. B., a railroad employee, aged 37 years, was admitted to the General Hospital under Dr. Armstrong, complaining of pain in the head and bleeding from the right ear. On the morning of this day, when about to take the train to come to Montreal to his work he was struck by a moving locomotive. He believes that the locomotive knocked him down and that in falling the brake-beam



of the locomotive struck him on the head. He did not lose consciousness and boarded the train for town, but on the advice of fellow passengers, who observed the blood flowing from his right ear, he consulted a doctor at St. Lambert, who advised him to go on to the General Hospital which he did. The case was diagnosed fracture of the base of the skull and the patient put to bed. The ear was bleeding freely, so it was swabbed out with formalin solution and packed with gauze. He never lost consciousness and was quite rational, and had no loss of power in the limbs, though there was some loss of sensation. The bleeding from the ear ceased on Nov. 14th, and there were no symptoms referable to the ear until Nov. 23rd, when he had a chill with a temperature of 102, and pus began to flow from the ear. I was asked to see him on Nov. 28th, and on examination found a suppurative otitis media on the right side, with a large polypus almost completely filling

the external auditory meatus. The patient complained of pain in the mastoid region and tenderness on digital pressure over the same. There was considerable redness and swelling of the soft parts over the mastoid. I operated the same day, assisted by Dr. Armstrong, and found on removing the cortex that there was a good deal of diseased bone with pus and granulations. All the diseased tissue was removed, and patient made an uninterrupted recovery and was discharged on Dec. 17th, and ultimately had good hearing.

The pus from the mastoid bone was evidently delayed in transmission to the Pathological Department, as Dr. Duval reports the finding only of a bacillus negative to Gram's method.

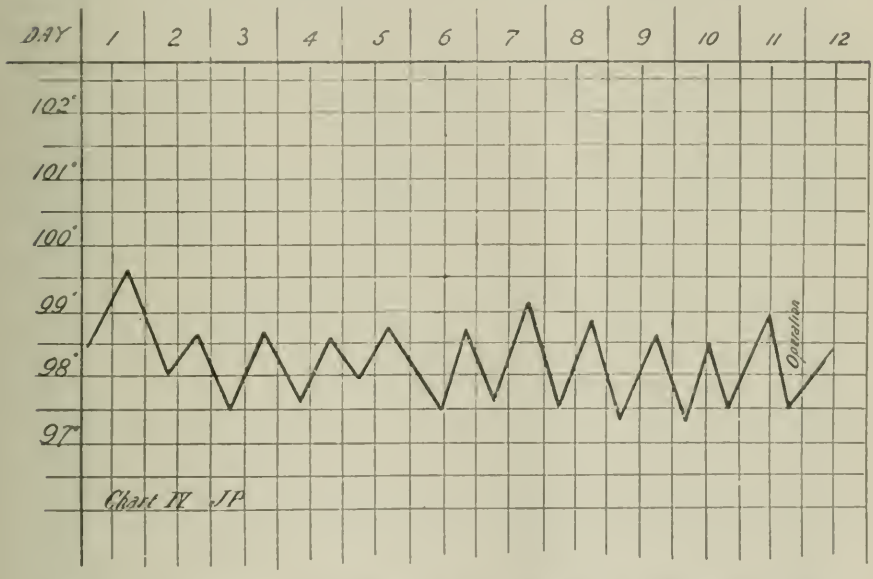


Case III.—Double Mastoiditis.—On Dec. 17th, 1906, W. B., a clerk, aged 29 years, was admitted to Dr. Finley's ward with typhoid fever.

The case presented no special features until Dec. 31st, when he began to have pain in the left ear. I saw him on this date and found he was suffering from acute otitis media. A few days later a similar condition developed in the right ear. It is worthy of note that the changes in the visible portions of the auditory apparatus were of a severe type, the membranæ tympani being intensely red and much swollen, and hæmorrhagic bullæ present on the wall of the meatus near the membrane. Both ears went on to suppuration. The pus from the meatus contained B. pyocyaneus. On Feb. 2nd, when the patient was convalescent from the typhoid fever, I was again called to

see him on account of pain in the right mastoid. I found on examination that there was œdema of the soft parts over the right mastoid with marked tenderness on digital pressure and a free discharge of creamy pus from the meatus. The patient was operated on the same day and as soon as the chisel penetrated the bone, pus welled out in quantity. On removing the pus and granulations, it was seen that a large portion of the mastoid was diseased.

The diseased bone was removed thoroughly, leaving a cavity extending as deep as the floor of the antrum and as far as the top of the mastoid. As there was a free flow of creamy pus from the left meatus a free incision of the membrana tympani was made on that side.



Dr. Duval reported that the pus from the mastoid contained streptococcus pyogenes.

The patient rallied well from the operation in spite of his run-down condition.

Four days later the skin about the wound and, in fact, almost all over the top of the head, was found to be very much swollen and œdematous, though not reddened. This swelling, which was doubtless due to streptococcus infection of the skin, did not lead to suppuration of the wound nor to any constitutional symptoms, and disappeared in a few days. Creamy pus continued to flow from the left ear and some tenderness on digital pressure also developed, so that on Feb. 9th the patient was once more etherized and the left mastoid exposed. Pus

was found at once when the cortex was penetrated, and even greater destruction of the mastoid cells than had been found on the right side, part of the roof of the antrum being eroded so that pus was in contact with the dura of the middle fossa, (extradural abscess). The diseased bone was freely removed as in the former operation and the patient made an excellent recovery and was discharged with good hearing, on March 2nd. The pus in this mastoid also contained streptococcus pyogenes.

Case IV.—Advanced Disease of Mastoid with but Slight Symptoms. —On Jan. 19th, 1907, I was called to see J. P., a boiler maker, 37 years of age, who was complaining of pain in the left ear following an attack of influenza. I found the membrana tympani very red and swollen and there were hæmorrhagic blebs on the meatal wall near the membrane. I made a free incision in the membrana tympani and the next day found patient so well that I left him to the care of his family physician. On Feb. 3rd, he called to see me, because of pain about the left mastoid. I found that there was a profuse discharge of creamy pus from the left ear and that there was tenderness in the mastoid on digital pressure. I sent him to the General Hospital where I incised the membrana tympani once more, had Leiter coil applied to the mastoid and ordered the ear to be syringed every three hours with hot boracic acid solution. Under this treatment the pain disappeared in 24 hours and the tenderness became much less marked, but the discharge of pus was only slightly lessened. In the next few days the tenderness at times was absent and was never at any time very marked, so that I hoped to have aborted the mastoid inflammation, as we can very often succeed in doing in acute cases, by the above treatment. However, the patient's condition kept about the same, he did not improve further, and the discharge of creamy pus was still excessive so that on Feb. 13th I decided to operate. My reasons for operating were chiefly three, the fact that the patient did not improve, the persistence of a rather profuse discharge of creamy pus, and very slight tenderness over the mastoid. There was no œdema of the soft parts, no pain, no prolapse of the postero-superior part of the meatus near the membrana tympani and no temperature, yet when I opened into the bone the whole mastoid process was found to be filled with a mass of pus, granulation and dead bone, and when this debris had been removed it was seen that both the dura of the middle fossa, and the lateral sinus were exposed. The pus contained staphylococcus albus. The patient made an uneventful recovery and was discharged on March 1st. I have not touched on many interesting points in these

cases but have condensed the reports as much as possible. The lesson taught by the first case is, I take it, that early diagnosis in lateral sinus cases is of much importance, and also that early operation in mastoid cases is advisable if we wish to avoid intra-cranial complications.

The second case is unusual, in that the patient had a distinct chill, which is not ordinarily met with in mastoiditis without intra-cranial complications, and perhaps, may be explained when we consider that the fracture of the skull may have opened avenues of connection with the general circulation not usually present.

The third case is of interest in that we have here suppurative disease of both mastoids, which is decidedly uncommon, and also in that it shows the great resisting power of the dura mater to the attack of pus-producing bacteria. The fourth case is very instructive in showing to what a dangerous extent suppuration of the mastoid region may proceed without producing any alarming symptoms. In mastoid disease temperature is a very poor guide as regards the severity of the inflammatory process, and this is well shown by a study of the temperature chart in this last case.

SPORADIC GLANDULAR FEVER.

BY

G. Gordon Campbell, M.D.

Glandular Fever is described in text-books as an epidemic disease of childhood characterised by rapid and painless swelling of one or more groups of the lymphatic glands and accompanied by fever and constitutional symptoms. The disease runs its course in a few weeks and subsides without suppuration of the affected glands. While there may be general involvement of most of the superficial and many of the deeper glands the disease not uncommonly affects only the group of glands lying about the upper end of the sterno-mastoid muscles. The following case from the Out-Patient Children's Clinic of the Montreal General Hospital presents a symptom-complex which seems to entitle it to be classed as an isolated instance of the disease.

W. B., a boy eight years of age, was brought to the clinic by his mother on October 15th, 1906, complaining of swelling of the neck. On first sight the uniform swelling on both sides of the neck just below the ear presented very much the appearance of epidemic parotiditis. On examination it was found, however, that the parotid was not involved but that the swelling was produced by enlargement of the

glands about the sterno-mastoid. Three or four much enlarged and firm but not tender glands could be felt in each mass, and the submaxillary and sublingual glands on both sides were also involved. The skin over the part was not reddened and the swelling produced no discomfort other than slight stiffness of the neck. The mother stated that the boy's illness had commenced three days previously with fever, vomiting, loss of appetite and general malaise. She had noticed the swelling a couple of days later, and it had rapidly assumed the proportions to which it then reached, but was not apparently increasing.

Physical examination did not reveal any further glandular enlargement, and the condition of the throat was not such as to account for the unusual swelling in the neck. The tonsils were slightly enlarged, and the mucous membrane of the fauces injected with very slight œdema about the uvula and soft palate, but the throat was not "sore" to the patient's knowledge. The temperature was 101.2°F. On the following day the patient's condition was much the same, no change being noted in the condition of the glands, the temperature being 102.4.°F. From this time on the adenitis slowly subsided, the temperature gradually falling to normal: until on November 5th, about three weeks after the onset, the patient's condition was normal.

A very similar isolated case was seen by the writer eight years ago in a boy of the same age. The glands involved and the course of the disease were the same, except that the enlargement on the right side occurred three days after that on the left and the disease was ushered in by a well-marked chill.

This case corresponds very closely to William's description of the disease in Allbutt's System of Medicine, with the exception that there was no previous history of constipation and no disturbance of the gastro-intestinal tract during the illness, beyond the initial vomiting.

The seventh annual meeting of the Dominion Anti-Tuberculosis Association held in Ottawa, in March, was poorly attended, and aroused comparatively little public interest there. It was wisely decided not to confine the meetings to Ottawa in the future. It was promised on the part of the Ontario Government that at its next session a bill for compulsory notification and other preventive measures would be brought forward.

Dr. A. B. Welford has been appointed Consulting Physician to the Epileptic Asylum at Woodstock, Ont.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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VOL. XXXVI. MAY, 1907. No. 5.

PROTESTANT HOSPITAL FOR THE INSANE.

The twentieth annual report of the Board of Management and the seventeenth of Dr. Burgess, the Medical Superintendent, will well repay careful perusal by all interested in the care of those so justly entitled "the most unfortunate of all God's afflicted ones.". By a comparison with previous reports, it will be seen that the number of occupants is steadily increasing, a state of affairs which has rendered necessary the introduction of additional beds into some of the dormitories. These, though not unhealthily overcrowded, are now fuller than the Superintendent cares to see them, and certainly incapable of further expansion. As a result of this a plea is made for an increase of accommodation, and it is to be hoped that it will not go unrecognized. This increase in population, common to nearly all institutions for the insane, is now generally, and probably rightly, regarded as not owing

to any material production of fresh insanity disproportionate to the yearly increase of the population at large, but almost entirely to the accumulation of chronic cases.

That such chronicity is in a measure preventable by early admission is strongly dwelt upon by Dr. Burgess, and as a warning to the profession we cannot do better than quote his words on the subject:—"The fact that so comparatively few patients are sent in during the early or curable stage of the disease, accounts for the paucity of recoveries in most hospitals for the insane. Friends of patients still resort to various devices, as travel and confinement at home, to hide the family skeleton, and only adopt hospital treatment as a last resort. Why brain disease should be regarded as more disgraceful than disease of the lungs or any other organ of the body, or why the fact of insanity occurring in a family should be looked upon as well nigh tantamount to an acknowledgment of criminality, is hard to grasp. Such, however, has been and is still the case to a far greater extent than it should be. There are, nevertheless, thank God, strong indications that the ill-founded prejudices so long prevalent against insane asylums are gradually giving place to a more intelligent and enlightened sentiment. Time was, and not so very long ago, when hospitals for the sick and injured were looked upon askance by the general public. Contrast that sentiment with the feeling now existing, when every class, even the wealthiest, is willing—yes, anxious—to leave home with its comfortable surroundings in order to secure the superior advantages that every properly-equipped general hospital offers. It is not too much to hope that, with the advancement in the character of hospitals for mental disorders, there will come a similar change of sentiment toward them, and friends be as eager as they have been reluctant to place their afflicted ones within their sheltering walls."

The assistance given to the congestion of the hospital by the reception of mentally defective immigrants is also referred to by Dr. Burgess, who on this subject says:—"That the eyes of the authorities are being opened, and none too soon, to the mentally defective type of many of the immigrants being foisted upon us is evidenced by the fact, that of those discharged, eleven, seven men and four women, were deportations. Of these, eight were returned to the British Isles, one to Austria, one to Germany, and one to the United States. The new Immigration Act, passed by the Dominion Legislature last year, is much more extensive in its scope than was the Act previously in force; and by its aid I trust that the element which was rapidly leading to an overcrowded state of our hospitals for the insane will be greatly limited."

The appended statistical tables are a veritable mine of information, covering, as they do, the nationality, education, occupation, age, heredity, causation, duration of insanity, state of bodily health, etc., etc., of all those admitted, not only during the year but since the opening of the hospital. Perhaps the most noteworthy point to be adduced therefrom is the large number of discharges and the few deaths during the year. The discharges, which are largely dependent upon the class of cases received, made a discharge rate of 72.84 per cent, and a recovery rate of 46.75 per cent on the admissions. The deaths showed a mortality rate of only 4.74 per cent on the number under treatment, the smallest with one exception (1892) since the opening of the institution.

Financially, the affairs of the establishment, though in better shape than is the case with some other of our charitable institutions show the necessity for an increased revenue if the good work being done is to be kept abreast of the times; the gross receipts for the year falling short of the expenditure by $2,678.37. This deficit was, however, partly accounted for by extensive repairs which had to be made to the main building.

TORONTO HOSPITAL FOR THE INSANE

Dr. Clarke and his assistants are to be congratulated on the production of the first number of their Bulletin, which, we trust, will be but the first of a long series of no less valuable contributions. As stated on the title page, the Bulletin is a Journal devoted to the interests of Psychiatry in Ontario; but we are not without hope that its benefits will not be confined to that Province alone. The issue of the pamphlet marks a distinct advance in the science of Psychiatry in Canada, and is a step toward the removal of a condition of affairs which a recent writer thus portrayed: "While, with respect to custodial care and ordinary treatment, moral and medical, Canada, generally speaking, is well up to the times, she is doing little toward the solution of the many problems connected with the scientific aspects of insanity. In this respect she presents but a sorry picture when compared with the good work being done in many hospitals elsewhere."

The ordinary annual report issued by our hospitals for the insane is chiefly devoted and rightly so, to detailing the management of the institution. It is intended in great measure only for the perusal of the laity on whom falls the burthen of the support of such establishments, and the scientific side of the subject of insanity is not considered. The present undertaking offers a channel through which the latter may be made known to all interested. It has been said, and truthfully, that

psychiatry has not made as much progress as has surgery or some branches of medicine. This lack of progress, however, depends chiefly on the nature of the malady which is concerned. The brain and its functions are not understood as are the kidney or the stomach and their functions, and consequently the pathology of the two must stand on different planes. To equalize them should be the aim of every asylum physician, and this is only to be done by careful scientific research, and a comparison of the results obtained by such study with those obtained by others engaged in the same field of labour. The publication of the journal now before us will be, we feel assured, an incentive to such systematic study and will furnish a means for the dissemination of the knowledge gained thereby.

To the profession at large we would earnestly recommend an attentive perusal of the introductory article, where the aim of the venture is set forth in the following words:—"This little periodical is issued with the hope that by a fuller co-operation between the outside medical man and his patients, on the one hand, and the psychiatrist on the other; we may gain a clearer insight into certain conditions that at the present time are of immense practical importance, but not at all clearly understood. That we may succeed in this undertaking, it is most essential that we enlist the aid of those engaged in general medical work everywhere, so that our case histories of the patient until his admission may be complete; not mere isolated facts, of no value unless correlated."

The form of physical examination laid down to be followed by the assistants in the Toronto Asylum leaves nothing to be desired, and should form a most useful guide to any physician called in to study a patient suffering from mental disease, while the case of pure paranoia, described in full, and the article on the gross anatomical features seen post mortem in the brain of a congenital deaf-mute, with accompanying photographs, are interesting in the extreme.

PROFESSOR MULLER'S VISIT.

During the first week of the month, Montreal was favoured by the visit of Dr. Frederich Müller, Professor of Internal and Clinical Medicine in the University of Munich, who is making a somewhat extended tour of the various centres of Medicine in America.

Professor Müller is, at the present time, perhaps the most popular German clinician in the minds of the English-speaking students, and his clinic is at all times thronged with foreign visitors. To quick percep-

tion, a keen eye and an untiring activity, he adds an excellent, almost a perfect knowledge of the English language: every one who heard him speak must have been impressed by his fluent, direct style: he is rarely at a loss for a word, and his utterances are as rapid as if it were his native language. We are indebted to him for his kindness in meeting the students and the members of the faculty on several occasions, and for his willingness to give his views upon the subject in hand; as an educationist of experience in continental methods he had much to say that was of great value to those of McGill University who had the fortune to hear him. Dr. Müller was the guest of Dean Roddick, and on Wednesday, delivered a clinic to the students, at the Royal Victoria Hospital, upon diseases of the blood. On the same evening, he delivered a lecture upon disseminated sclerosis, which was listened to with much profit. On Thursday, at the General Hospital, the subject was pneumonia; in all these, it was evident that Professor Müller's mode of instruction was decisive and finished; the subjects were treated with a simplicity, and a rapid detail that left the listener with a complete mental picture of the subject. On Thursday evening, as the guest of the Faculty at the Mount Royal Club, Professor Müller spoke to the members of the professoriate and to some of the junior teachers upon German methods of university instruction, and the change that seemed desirable in them, as well as upon the prevailing views in American colleges. We can assure our visitor that his outlay of energy during a holiday visit, has earned our heartiest thanks and appreciation. It is expected that the honorary degree of LL.D. will be conferred upon Professor Müller, at the Convocation in June.

THE LEGISLATURE AND THE FIVE YEARS' COURSE.

The efforts of the Medical Board of the College of Physicians and Surgeons to have the course of medical studies in this Province lengthened from four to five years, have met with a rude rebuff. The bill to that effect which it brought before the Provincial Legislature, was rejected by a vote of 37 to 26.

With our own knowledge of Legislatures in general, and of our own in particular, such action can not be called surprising. But it is none the less aggravating, in view of the fact that the measure had the approval of practically the entire medical profession of the Province. The present Medical Board was elected chiefly on the merits of this question, every medical society without exception had voted in its favour, and the three Medical Faculties of the Province were agreed

that at the present day four years is far too short a time in which to make of the student a competent physician. The astonishing progress of medical science during the past 30 years has brought about a veritable revolution in the methods of teaching. Laboratory work of all kinds makes ever-increasing demands on the student's time, particularly in the first half of his course, and in the last half the hospital work, which is *par excellence* the practical and all-important part of the training, demands every available hour, and much more time, indeed, than can at present be given it. Time might, we believe, be economised by cutting down the still excessive number of theoretical lectures. It is a baneful heritage from the days when knowledge was monotonously droned into the somnolent student's cortex from morn till eve, by way of his tympanic membrane.

The opposition to the bill came almost wholly from the representatives of the rural districts, the exceptions being one member from Quebec and two, Messrs. Lacombe and Langlois, from Montreal. But the unkindest cut of all, was the opposition of Dr. Bissonette, of Montcalm, who voted against it. We do not question his motives, his action is sufficient arraignment. The other seven physicians who are members of the Legislature, did their duty as we understand it, and Dr. Lemieux spoke eloquently in favour of the measure. The bill had the support of the leaders of the opposition party, and also of the Premier, the Hon. Mr. Gouin, who admirably summed up the debate in these words: "Since the Universities, the College of Physicians, and the medical societies support this proposal, and they are the best judges, we ought to accede to their requests."

The argument on which the proposal was rejected was that it would increase the already burdensome cost of medical education, and place it beyond the means of the sons of the poor, particularly of the agricultural class. The same cry was heard before, when the course was lengthened from two to three years, and later from three to four.

It is not gratifying that Quebec should lag behind Ontario and Manitoba, which both require the five years' course; and this may retard the coming of the day of common sense and justice, when there will be medical reciprocity between the provinces, or, better still, Dominion registration. The M.D. degree is required for the licence, and our universities are independent. McGill has already decided to adopt the five years' course, and Laval, no doubt, will follow.

POSTAL RATES ON ENGLISH JOURNALS

By an arrangement which comes into force on May 7th, the rate of postage on newspapers, magazines and trade journals between Great

Britain and Canada will be reduced from four pence to a penny a pound. This will have an important bearing upon the circulation in Canada of English medical journals. Hitherto the postage upon the *Lancet* was nearly sixty cents a year, even though it was printed upon thin paper to decrease the weight. The heavy postage was not so bad as the thin paper which made the illustrations valueless and the text unreadable to middle-aged eyes. These pages tightly wrapped between advertisements for ten days would open up like the mess of paper which comes from a conjuror's hat.

Now we shall have the ineffable privilege of reading the *Lancet*, instead of blindly turning over the pages in wonder at what they may have imprinted upon them. At the beginning of the present year subscribers to the *British Medical Journal*, who omitted to pay in advance, were summarily stricken from the list. It will be interesting to ascertain at the next annual meeting if this rule has been applied universally or only to Canada. It seems a pity that men who have faithfully read the *Journal* for fifteen years in its attenuated form should now be debarred from entering into the large pleasure of clear type and opaque paper.

NEW DISASTER TO McGILL.

The destruction by fire of the medical building of McGill University, in the early morning of April 16th, following the destruction of the engineering building on March 29th, comes like the disasters in a Greek tragedy. The magnitude of the loss cannot be estimated in money. What can be repaired by the expenditure of money will be repaired, but the loss to science and to individuals is irreparable. Such a catastrophe would strain the resources of any institution, and now is the time for the friends of McGill to rally to her aid. The medical faculty is overwhelmed with sympathy, but it needs assurance of more tangible support.

Burdened with the extension of the course from four to five years, with the lack of adequate endowment, faced by a probable diminution in the amount of fees, the faculty might well have been spared this new trial. For over eighty years McGill has kept up the standard of medical education in Canada, and must not now permit it to pass to other hands.

At the time of writing, before the losses are accurately known, it may at least be said that the upper two stories of the front part of the building were burned out, the lower story greatly damaged; the central

part was burned in its entirety, except the library stack room and the office safe; the rear wing is damaged by water throughout, and the upper floor greatly damaged, also, by fire. The stack-room contains some water on the floor, but the books are intact; the students' reading room is greatly damaged, but some books will, doubtless, be saved. The pathological museum is destroyed, save for the front room in which most of the specimens are safe. The anatomical department is completely destroyed, including the museum, preparations, models, charts, and Dr. Shepherd's private collection, including many series of lantern slides.

The pathological department is also completely destroyed, even the students' laboratory, in the rear wing, being burned very considerably. All the equipment of this department is destroyed, including microscopes, save two or three left intact. Professor Adami is a very heavy loser, as his private working library, of many hundred volumes, including the collection of years, and the gifts of many eminent friends is entirely lost. The research laboratories are also destroyed, and Drs. Klotz, Ballah and Rankin lose heavily in records of work, and experimental material, which cannot be replaced. The physiological department is badly damaged, but most of the apparatus of the students' laboratory is intact, and Professor Mills' private library, though injured by water, is not burnt. The chemical, hygiene and histological laboratories have suffered much by water, and in the case of the chemical laboratory, considerably by fire.

The noble faculty room is gone, and with it the portraits of past deans which adorned the walls.

The loss falls with especial weight upon Dr. Shepherd who has seen the work of a lifetime destroyed. Not a vestige of his precious collection of anatomical specimens remains. It is appalling to think that the splendid examples of diseases of the osseous system, which were displayed at the last meeting of the Canadian Medical Association in Montreal are gone forever.

There is no use in disregarding the forces which make for disorganization, the building burned, laboratories destroyed, the museums wrecked, the library damaged. The catastrophe marks the end of an era. In the future it will be looked back to as the beginning of another. The University must lay a new foundation.

The main building of the Faculty of Medicine was erected in 1873. In 1885 and again in 1893 large additions and alterations were made. Again proving inadequate, a thorough reconstruction and enlargement of the buildings was completed in 1900.

The alterations and extensions consisted of three wings, the first one a laboratory wing, which occupied the northeast corner of the block of buildings and replaced what was formerly the pathology wing. A second wing connected this with the front building on the east, and the third wing connected the Molson block with the original building on the west side.

The central wings extended east and west about seventy feet, and formed the central feature of what was a symmetrical block of stone buildings. The stone and brick extension erected by the faculty in 1885 had been entirely removed and replaced by the substantial structure just mentioned. The alterations and extensions formed the large portion of the scheme of complete reconstruction and extension which would ultimately lead to the replacing of the original stone building which remained, by a facade, which was to project into the university grounds to the south of the buildings and so convert it into a symmetrical whole.

The ground floor contained the lavatories, locker rooms, furnace rooms, vat rooms, store rooms and the janitor's dwelling. In the laboratory wing there was a large recreation room for students, a students' laboratory for pharmacology and therapeutics, a research laboratory, and a private room connected with this department.

On the first floor were the pathological museum, the library and the students' reading room, with accommodation for two hundred readers. The reading room was connected with a fire-proof stack room, which contained the valuable library of the faculty. The library contained about 24,000 volumes, the stack room having the capacity of about 40,000. The pathological museum on the other side of the hall connected with the rooms beneath the seats of lecture room No. IV., which were used for special collections and for curators' rooms. Four small rooms adjoining were for the use of professors as private rooms. On the opposite side of the hallway, in the central section of the building, were the professors' room, the faculty room and the offices of the registrar.

The most striking feature in the construction of the building was the large central hall or rotunda, extending from the ground floor through three storeys to the roof, lighted by a skylight, occupying the whole length of the middle section. This hall was seventy feet long by forty-five feet wide, with galleries at each floor connecting the various laboratories and lecture rooms with a broad staircase at each end.

The northern section contained the chemical laboratory, eighty feet front by forty-five feet wide, and twenty feet high, surrounded with

draught cupboards and having benches for 150 to 180 students. Connected with this room was the commodious research laboratory for advanced work in medical chemistry, and a small professors' laboratory. On the opposite side of the hall was a large lecture room with a seating capacity of from 400 to 450; the museum preparation room, a small cloak room and preparation rooms connected with the lecture room.

The floor above in the two southern sections was devoted entirely to anatomy. The dissecting room occupied the top of the front building and was connected on the west side with a series of demonstrators' rooms, a private dissecting room and two rooms for the professors of this department. These rooms surrounded the large hall where lectures in anatomy were given. On the opposite side of the hall, occupying the same area as the lecture room and the adjoining rooms was the anatomical museum. Intervening between this and the dissecting room on the east side was a small demonstration room, locker rooms and service rooms connected with the department of anatomy.

In the northern section were the museum of hygiene and the hygiene laboratory. This laboratory was 105 feet long, and afforded space wings. On the top floor were the departments of physiology, pathology, bacteriology and h[illegible]y.

Occupying the [illegible] end of this floor was the histological laboratory, which [illegible]istance across the east and west for the use of [illegible]

The buildin[illegible]ained four lecture rooms, three [illegible]he fourth from 400 to 450. Ther[illegible]iology, anatomy, obstetrics and gynæcology, [illegible]

There is little probability that the extra g[illegible]nts asked for by St. Michael's, Grace and the Western Hospitals, Toronto, will be made this year. The sum asked by these three institutions for building purposes amounts to $200,000 and requests from the Home for Incurables, the Girls' Home and the Boy's Home bring the total amount asked for up to $270,000.

A gloom was cast over the student body by the death of Mr. James Roy Black, Medicine '08, which occurred at the Royal Victoria Hospital from typhoid fever. Mr. Black was born in Oxford, N.S., and was 22 years old. He was an honour student, a member of the Alpha Kappa Kappa fraternity and a young man much esteemed.

The Philippine Islands Medical Association issued invitations for the fourth annual meeting which was held in Manila from February 27th to March 2nd. There are obvious reasons why the representation from this community was small; but we are fully sensible of the scientific activity of the band of men who are striving for the well-being of these new people whose care has fallen to the government of the United States.

Dr. John Edgar March, port quarantine officer, at St. John, N.B., died on April 3rd as a result of paralysis due to hemorrhage in the brain. Dr. March was born in June 1860 and was forty-seven years of age.

WILLIAM HENRY DRUMMOND.

Dr. William Henry Drummond, physician and poet, died on April 6th, 1907, in the fifty-third year of his age. The cause of death was a cerebral hæmorrhage which occurred on the previous Monday, and produced a paralysis of the right side. The interment was made in Mount Royal Cemetery, on April 8th, and was accompanied by a demonstration of popular grief such as has rarely been witnessed.

More than a year ago, Dr. Drummond retired from the active practice of medicine to occupy himself with mining interests which he and his brothers had acquired in Northern Ontario. An out-break of small-pox in the camp required his presence in Cobalt early in April, and it was whilst attending to his duties that he was stricken. He died in Cobalt amidst the wild scenes which he loved so well.

The end came as a complete surprise to his friends. His splendid physique and fine frame, his cheerful aspect and vigorous habit of life gave promise of an old age which only the slow process of decay could destroy. Therefore the sad intelligence of his untimely end gave a new poignancy to the old truth, that in the midst of life we are in death.

We say that the end was untimely because the world had need of him, had need too of the joyousness of his poetry, the humour of his nature, and the warmth of his enthusiasms. He was an influence for good, and beauty, and health in the community, and the world is a poorer, meaner place, now that his light is gone out.

Dr. Drummond was the son of the late George Drummond, an officer in the Royal Irish Constabulary, by his wife, Elizabeth Morris Soden, and was born at Currawn House, County Leitrim, Ireland, April 13th, 1854. Educated at Mohill, Co. Leitrim, and at Montreal High School, he studied medicine at Bishop's College, graduating in 1884. He was

for twenty years in general practice in Montreal, and held the Chair of Medical Jurisprudence in the Medical Faculty of Bishop's College. In April, 1894, he married May Isabel, only daughter of Dr. O. C. Harvey, M.R.C.S., of Jamaica, and is survived by her and two children.

He was not a great physician nor a great poet; but he was something better—a great man—because he loved much, and was greatly beloved in return. He had infinite capacity for friendship which quickly developed into affection. His mind was alert for the good which is in every man, even the worst. For him evil did not exist. He was the friend of every man, even of sinners. Above all he was sensible of the sorrow which is in the world, and wept with those who weep.

As a poet he had the quality of great poets. He saw beauty in common things, pathos in lowly life, humour in dull uniformity. The vein which he discovered was small, but it was pure and new. He discovered the French-Canadian and embodied him in literature, as well as it could be done. To perceive a fresh truth, and set it forth charmingly is the business of a poet. He did both. What Burns did for Scotland he did for Quebec. By his vision we see our compatriots in a new and kindly light.

So long as men love the open life, the honourable chase of game, the smell of the earth, and the sounds of the forest, his spirit will continue to haunt the Laurentian hills, the blue lakes which lie amongst them, and the swiftly flowing waters of which he sung. We may lament as Milton lamented:

> "For Lycidas is dead, dead ere his prime,
> Young Lycidas, and hath not left his peer;
> Who would not sing for Lycidas? he knew
> Himself to sing, and build the lofty rhyme....
> But O, the heavy change, now thou art gone,
> Now thou art gone, and never must return!"

Reviews and Notices of Books.

SOME POINTS IN THE SURGERY OF THE BRAIN AND ITS MEMBRANES, by CHAS. A. BALLANCE, Surgeon to St. Thomas's Hospital and to the National Hospital for the Paralysed and Epileptic, Queen Square, London. Macmillan and Company, London, 1907. 465 pages.

Mr. Ballance will perhaps be better known to Canadian readers when we say that he is the colleague of Sir Victor Horsley at the Queen

Square Hospital in London—that hospital of 180 beds devoted to diseases of the nervous system, where, in what concerns neurology, history is made as well as written. No one that we know of, apart from Sir Victor Horsley and possibly Macewen, has a better right to speak with authority upon neurological surgery than has Mr. Ballance. For this very reason, perhaps, one is a little disappointed in the book; it is too general and too brief. Naturally when a man entitles his book "Some Points," etc., it is hardly fair to criticise him for lack of detail; yet, having once determined to publish his lectures (for they represent the Lettsomian Lectures for 1906) in book form, if he had but set down more fully the results of his experience, if he had but made it more of a monograph, we had received the greater profit.

The book contains three lectures in as many chapters; the first upon the surgery of the cerebral membranes, the second upon brain abscesses, and the third upon brain tumours. The first chapter begins with a decent conventional reference to the founder of the lectureship, Dr. Lettsom, from which introduction the reviewer culls for the pleasure of the reader one gem of the pun scurrilous, a bit of verse current at the time, concerning the estimable Lettsom, to wit:

When patients comes to I
I purges, bleeds and sweats 'em;
If after that they choose to die,
What's that to I?
I Lets 'em.

Having done the proper thing by the founder, Mr. Ballance feels free to launch out into his subject, and in the rest of the first chapter (80 pages) he considers the surgery of the cerebral membranes. He first discusses arachnoid hæmatocele, or encysted subdural hæmorrhage following injury, a condition which may take on a progressive character and cause symptoms similar to those of tumour. He records cases of his own in which interference was successful, and intimates that the limits of operation in this condition should be widened. He approves Cushing's proposal to operate upon the dangerous hæmorrhages of the newborn. He points out the danger of meningitis arising from infection of the frontal, ethmoidal, and sphenoidal sinuses; and emphasizes the heavy responsibility that lies upon the general practitioner and the nasal specialist in this regard. His words are worth quoting: "Chronic suppuration in the accessory cavities of the nose is exactly comparable with temporal bone suppuration, and, like it, should be treated by complete ablation of the diseased bone. . . . Acute frontal sinus suppuration, and especially acute necrosis of the

frontal bone, is, if possible, even more dangerous to life than acute temporal bone suppuration. . . . The intrameatal aural specialist of the past generation was content to flit helplessly about his chosen canal in the manifest presence of lethal complications. Is it or is it not true that the intra-nasal specialist of the present day, with some brilliant exceptions, may at times be undoubtedly influenced by the traditions of his otological kinsmen, instead of following the teachings of Killian and facing the operation for the complete removal of the disease? . . . Operation for the cure of frontal and ethmoidal suppuration is now regarded in this country much in the same way as was the mastoid operation 20 years ago; hence the fatal frontal sinus cases so surprisingly frankly reported from time to time in our medical journals, as if the disease was inevitably mortal, and as if the lesson that danger attends delay and imperfect operation had yet to be learned." His illustrated cases in this connexion are striking. In general suppurative meningitis he condemns the "inappropriate inertia" of the general surgeon, and advises more frequent resort to trephining in view of the favourable cases lately reported by Hinsberg and others.

Ballance's ideas on hydrocephalus are interesting inasmuch as his name is particularly associated with the proposal to ligate both common carotids for the congenital condition. In support of this operation he cites but two cases, one of which happily survived, whose history is related in half a page, and who left the hospital two or three weeks later "apparently quite well and with no abnormal pressure of the fontanelle." The later history is unknown. The other case is given three lines. It died, not in Ballance's opinion as the result of the ligation, but from sepsis a week after operation. The reviewer thinks that to propose such an operation and support it by a couple of cases reported in this manner is a rather sad thing. Mr. Ballance records one immediately successful case operated upon by Cheyne's method of subdural drainage of the ventricles.

The chapter upon abscess of the brain discloses nothing much new. One of his cases, however, was extremely interesting. It concerned a cerebellar abscess which had been opened with temporary relief. Some days later there occurred acute purulent infection of the ventricles, confirmed by the passage of a tube into the descending cornu. The ventricles were irrigated with saline solution and, as the pus of the original abscess had yielded a pure culture of pneumococcus, antipneumococcic serum was given. In 36 hours the ventricles contained noth-

ing but cerebro-spinal fluid and improvement was very marked. Six days later the patient died from a second cerebral abscess which had been overlooked and at post-mortem, the ventricles were found healthy. In cases of abscess arising from disease of the adjacent bone, Ballance is strong in his advice to open these by following along the route of infection, that is, through the "stalk" of the abscess, from bone infection to brain lesion.

The third chapter is devoted to tumours and embraces 150 pages. It reveals a wide acquaintance with the literature and is thoroughly up to date, especially in the matter of diagnosis. He writes a strong apologia in favour of the early exploratory operation. He advises lumbar puncture in cerebellar conditions immediately preceding operation, in order to reduce the extreme intracranial tension, and so allow an easier and more thorough exploration of the subtentorial space. In the reviewer's opinion this would be dangerous unless the bone had previously been removed. The suggestion may be favourably compared with Frazier's recommendation to remove half of one cerebellum where complete exploration is necessary. Ballance's outlook as regards the "inoperable cases" is optimistic. "Tumours growing in the deeper parts of the brain, such as the optic thalamus, the corpus striatum.. or the pituitary body are at present spoken of as inoperable This is incorrect, for much may now be done for these cases by decompressive operations; and it is by no means improbable that in the near future they will be successfully removed." We may recall the fact that Horsley has already removed quite a number of pituitary tumours and with some success. In one of his own cases Ballance removed a sarcomatous solid tumour from the neighbourhood of the optic thalamus, one of which in all probability actually invaded the optic thalamus; and this with success.

One notices a lack of reference to the value of blood pressure records in cases of tumour, and it is plain that certain of his cases in which death occurred between the two stages of operation might have been better judged as to the imminence of death if such records had been taken.

In conclusion it may be said that, although one feels the lack of a completer presentation of the subject, the book is nevertheless extremely suggestive. The bibliography is extensive, the illustrations are extremely numerous, averaging one to every two pages, and are also decidedly good.

Edward Archibald.

METABOLISM AND PRACTICAL MEDICINE. By CARL VON NOORDEN, Professor of the First University Medical Clinic, Vienna. Vol I. The Physiology of Metabolism. By Adolf Magnus-Levy, Berlin. Vol II. The Pathology of Metabolism. By Carl von Noorden, Fr. Kraus, Ad. Schmidt, W. Weintraud, M. Mathes, and H. Strauss. English issue under the editorship of I. Walker Hall, Professor of Pathology, University College, Bristol; Pathologist to the Bristol Royal Infirmary, London. William Heinemann, 1907.

The two volumes entitled above comprise the first two parts of the English edition of von Noorden's work which is already familiar to the German medical world. The author's preface refers to the great increase that has of late years taken place in the number of English and American investigators of problems of metabolism, and closes with the wish that the book may take its part in cementing the friendship of the learned of different nations. These are large, light volumes of 452 and 525 pages, clearly typed; the first volume is indexed, while the index of the second volume will follow Volume III; most English readers, we think, prefer an independent index to each volume. The German text of Magnus-Levy's work, the Physiology of Metabolism was printed in 1905, and the editor has made the necessary additions. At the outset it may be stated that the book is divided into comparatively short, titled paragraphs, which will prove most useful and time-saving to the casual reader who consults the book, as well as to the more thorough student. A general discussion of digestion and absorption is followed by a concise, yet necessarily full description of the fate of the food stuffs in the tissues. Dealing with the origin of sugar from protein we notice the work of Halsey quoted, and that of Mills upon the sources of oxalic acid. The important physiological questions here dealt with are far too numerous even to mention, but they are definitely and briefly detailed, with the bibliography of each given at the end of the sub-chapter. Under the chapter upon human metabolism, exchange of energy is dealt with extensively, the methods of measuring energy are discussed and compared, and a mass of interesting material relative to the metabolism of the resting state, exercise, work of different kinds, as well as the differing metabolisms of individuals and climates is brought forward. There is much of general interest found in those pages that deal with the various kinds of work, sports, exercises, tests of endurance and long distance races, apart even from their physiological value. An addendum presents the evidence available on the debated question of luxus consumption, without, however, entirely

solving the vexed question of the amount of necessary food. Nitrogenous metabolism is next discussed in its relations to starving and feeding, and as also nitrogen equilibrium and diets efficient in nitrogens. Forced feeding and the disposal of nitrogen follows, as well as underfeeding; while a useful addendum on alcohol closes this sub-chapter. The next division deals with the influence of muscular work on metabolism, and it is here notable that the author takes occasion to state that the direct effects of massage upon metabolism have always been greatly over-estimated. The influence of sexual processes, menstruation, pregnancy and lactation and castration upon metabolism follows: the physiology of the intake and output of water, and finally, the metabolism of mineral substances close this section. A short section on the metabolic processes of old age concludes the volume. It may be said that the translations of the different sections are the work of many different hands.

The second volume, dealing with the pathology of metabolism, opens with chapters on hunger, starvation and overfeeding from von Noorden's pen, followed by Fever and Infection by Kraus. The latter is very interesting and instructive, yet, crowded as it is with details of interest, it is not easy to select any part for special mention; the discussion of what pyrexia is, and the explanations of the various chemical reactions of the febrile excretions, must keenly interest the clinician. Diseases of the stomach and intestines by Schmidt follows: in the field of pancreatic pathology one would expect reference to American authors who have done much in this field. Diseases of the liver are dealt with by Weintraud, and he has properly attempted a clinical view of the various derangements rather than a purely physiological one; the chemistry of the various secretions is dealt with, and an interesting sub-chapter, all too brief, is found on the disturbances of antitoxic powers of the liver. Matthes takes up the diseases of the respiratory and circulatory tracts, and Strauss diseases of the blood. The last named is a subject of great importance, and nearly four hundred references to literature indicate how much ground has to be covered. An addendum upon toxicity of blood serum might easily be more extensive. Metabolism in Renal Diseases is taken up by von Noorden, whose views here have been so widely accepted upon some of these problems. Cryoscopic examination of the urine, we note, meets with scant enthusiasm. Uræmia and œdema are interestingly, though briefly discussed.

In looking over the two volumes at hand, the reviewer is struck by the usefulness of the work to the physician, and the simple way in

which abstruse problems have been briefly and satisfactorily discussed; the practitioner can get much encouragement from them, because many subjects are shown to be within his scope and understanding which otherwise he would pass over as the property of the laboratory worker. The printing of the book deserves praise: the reference numbers are not too numerous, and the bibliography, though great in amount, is readily accessible to the eye by reason of the judicious employment of varied type. The page is clean in that foot-notes are sparingly used.

J. McC.

Surgery of the Rectum. By Fred. C. Wallis, B.A., M.D., F.R.C.S., Surgeon to the Charing Cross Hospital, St. Marks Hospital, etc. London, Baillière, Tindall and Cox. Toronto, J. A. Carveth & Co., 1907.

This practical little book is written for young surgeons and practitioners. It treats of the usual affections of the rectum; fistula, fissure, hæmorrhoids, ulceration benign and malignant. The author believes that all pronounced cases of pruritus ani are due to ulceration between the structures and that the proper treatment is cauterization of this ulcer under a local anæsthetic. In our experience we have in many cases failed to detect this ulcer even when the patient was examined thoroughly under a general anæsthetic, but no doubt it is one of the causes. For internal hæmorrhoids the author unhesitatingly recommends Whitehead's operation of excision, and can find no fault with it, calling it the only radical operation. He does not like the ligature, and condemns the clamp and cautery as obsolete, though he says he has had no experience of it. We have found it effectual, painless, and safe. Mr. Willis quite properly gives opiates after removal of hæmorrhoids and believes castor oil the best purgative in such cases after operation. He believes simple ulcer of the rectum is rarely or never due to syphilis; syphilis aggravates it but does not cause it. It is most common in women and is due to the infection of an abrasion through a vaginal discharge. He speaks of a fulminating form which may spread rapidly to the peritoneum and cause a fatal peritonitis. In cancer of the rectum he favours the ano-sacral operation, and when it is high up he rarely finds need for the combined operation of the anal and abdominal route. No mention is made of the excision by abdominal operation alone combined with an artificial anus in the inguinal region. Colotomy is fully described. The last chapter on Diagnosis of Rectal diseases should be read by every practitioner. This work is profusely illustrated and of a most practical character. There is no padding and there are only 165 pages. As a hand-book written by a practical man it is of great value.

TEXT-BOOK OF PSYCHIATRY. A Psychological Study of Insanity for Practitioners and Students. By DR. E. MENDEL, A. O. Professor in the University of Berlin. Authorized Translation. Edited and enlarged by William C. Krauss, M.D., Buffalo, N.Y. 311 pages. Crown Octavo. Extra Cloth. $2.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

This book, a very valuable work for the psychiatrist, would seem to have its most useful field among specialists. We believe the work is rather more that of the specialist for the specialist than for the physician whose need is to prove a patient's insanity, or the present day student who approaches the study of mental disease in order that he may learn enough of the subject to make an intelligent certificate of commitment to hospital in the case of an insane patient. The arrangement of the book and the classification of the psychoses is worthy of the author, long in the forefront of German alienists, and it would be hard to improve on the work of the translator. The chapters on etiology are comprehensive, the method employed in their subdivision, excellent, and in that part of the book concerned with general treatment, many hints are given on prophylaxis which cannot fail to be of practical value. It is in the section on special psychiatry that the hallmarks of the specialist are most apparent, and on careful reading the doubt is confirmed that the practitioner or student will not have time to study from this book. In a word, something more elementary as a text-book will amply meet the requirements of non-specialists in psychiatric equipment, though the volume may be heartily recommended as an authoritative work of reference.

A PRACTICAL TREATISE ON MATERIA AND THERAPEUTICS WITH ESPECIAL REFERENCE TO THE CLINICAL APPLICATION OF DRUGS. By JOHN V. SHOEMAKER, M.D., LL.D., Professor of Materia, Pharmacology, Therapeutics, etc., etc., Medico-Chirurgical College of Philadelphia. Sixth edition, F. A. Davis Company, Philadelphia, 1906.

The appearance of the eighth revision of the United States Pharmacopeia has been made the occasion for the publication of new editions of many of the standard text-books on materia medica and therapeutics. The sixth edition of Shoemaker's work has been thoroughly revised and brought up-to-date in every particular. The section on pharmacy and materia medica, including poisons and their antidotes is very complete, and that portion of the work which deals with the physiological action of drugs has been greatly improved. It is, to say the least, a very

difficult matter to combine in one work a complete text-book of pharmacology and therapeutics. Dr. Shoemaker has succeeded to a marked degree in supplying sufficient pharmacology to place the therapeutic application of drugs as far as possible on a scientific basis. The third section treats of the use of non-pharmacal remedies, hydrotherapy, electro-therapy, serum-therapy, etc., and it is maintained at the same high standard of thoroughness as those preceding it.

J. W. S.

THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION. By CHAS. P. B. CLUBBE, Hon. Surgeon to the Royal Prince Alfred Hospital and the Royal Hospital for Children, Sydney, joint lecturer on Clinical Surgery at the Sydney University. Edinburgh, Young J. Pentland, 1907, 92 pages.

This small book by a fellow colonist is based on the writer's own experience gained during the last thirteen years. It does not pretend to be an exhaustive treatise on the subject, but practical points on the diagnosis and treatment are fully dealt with. He holds that the only two methods worth considering are, irrigation and laparotomy. In 138 cases where the author has used irrigation in only 14 was the treatment successful. He advocates it only in the early stages, and if it fails, laparotomy should be immediately performed. Statistics of 144 cases are given. Laparotomy was performed 124 times with a mortality of 32.2 per cent. His mortality has been steadily decreasing. In the first 50 cases it was 50 per cent; in the second 50 cases, 24 per cent; and in the last 24 cases, 12½ per cent. There were eight resections of the bowel; all died. The book is interesting as being a result of personal experience.

PSYCHOLOGY APPLIED TO MEDICINE. Introductory Studies by DAVID W WELLS, M.D. Lecturer on Mental Physiology and Assistant in Ophthalmology, Boston University Medical School; Ophthalmic Surgeon, Homeopathic Hospital, Boston, Mass. Oculist, Newton, (Mass.) Hospital. Illustrated, nearly 200 pages, with Bibliography and index. 12 mo. Extra quality, paper bound in cloth, $1.50.

This little book has developed from Dr. Wells' lectures to medical students. The matter presented is an attempt to bridge over the gap between psychology and medicine. Medical technicalities have been avoided almost altogether, in order that the book may prove more popular with general readers. We notice, however, some inaccuracy, especially in the explanation of binocular vision. The statement that

each ganglion cell of the occipital cortex has two neurons, which run together in the optic tracts but part company at the chiasm, one going to the outer half of the retina of the same side, and the other crossing over to the inner half of the retina of the outer eye, is quite original.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D. Series xvii. Vol. 1. J. B. Lippincott Company, Philadelphia.

The familiar name of Dr. A. O. J. Kelly has been replaced by Dr. W. T. Longcope as editor. The names of Edmund Landolt, and J. B. Murphy have disappeared from the list of collaborators; and the names of Frank Billings and Chas. H. Mayo appear in their stead. To the new editor and his assistants we give a good welcome. Amongst the many excellent clinics we note Dr. G. Hudson Makuen's upon Hysterical Mutism. Dr. Makuen is probably the greatest living authority upon defects of speech, and he has placed the treatment upon a scientific basis. His treatment of stammering, for example, is as efficient as the treatment of diphtheria by antitoxin. We are obliged to note again the inadequate appreciation of the work which is done in Canada. This is a defect of most of the American summaries, and makes them less acceptable in this country than they would be if a more comprehensive view were taken.

MODERN MEDICINE, by Eminent American and Foreign Authors. Edited by WILLIAM OSLER, M.D., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia; and in McGill University, Montreal. The work will be in seven octavo volumes of about 900 pages each, illustrated. The price per volume will be, cloth, $6.00, net; leather, $7.00 net; half morocco, $7.50, net.

Of the seven volumes to constitute the work, the first will be issued about April 15th, and the others at intervals of about three months, long enough to enable the readers to master the contents of each volume as it appears, and to render the acquisition of the series easy from the financial point of view.

ESSENTIALS OF CHEMISTRY AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., Cornell University, 13th edition. Revised by R. J. E. Scott, M.D. William Wood and Company, New York. $1.00.

The name of Witthaus as author, the thirteenth edition as number, Dr. Scott as reviser, William Wood as publisher, one dollar as price—this is sufficient comment upon this excellent little book.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS, PHILADELPHIA. Series III. Vol. 28. 1906.

The present volume contains the papers read before the college from January, 1906 to December, 1906 inclusive. These are twenty-four in number, amongst them we note a lecture by Tait MacKenzie, upon The Anatomical Basis for the Treatment of Scoliosis by Exercise.

Medical News.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

SEVENTH TRIENNIAL SESSION

The Congress meets in Washington, on Tuesday, Wednesday and Thursday, May 7, 8 and 9, 1907. It is composed of the members of those National Medical Societies whose names are given below, and of guests specially invited by the Executive Committee. The Constituent Societies, in the order of their organization, are as follows:—American Ophthalmological Society; American Otological Society; American Neurological Association; American Gynecological Society; American Dermatological Association; American Laryngological Association; American Surgical Association; American Climatological Society; Association of American Physicians; American Association of Genito-Urinary Surgeons; American Orthopedic Association; American Physiological Society; American Pediatric Society; American Medico-Psychological Association; American Association of Pathologists and Bacteriologists.

All physicians are invited to attend the meetings of the Congress and the public meetings of the Societies, but only those may register who are members, specially invited guests, or visitors accredited through the Secretaries of Constituent Societies. It is recommended that members effect registration in advance of the meeting by filling out the blank certificates of registration, which will be sent to each member about April 1, and forwarding these certificates, with the requisite fee, to Dr. Newton M. Shaffer, Treasurer of the Congress. The general sessions of the Congress will be held in the Convention Hall of the Arlington Hotel from 3 to 5 P.M., Tuesday and Wednesday. The President of the Congress, Professor Reginald H. Fitz, will deliver an address Tuesday evening, May 7, at 8 o'clock. It has been arranged that members and their friends attending the Congress can secure from the Passenger Associations a railroad rate of one and one-third of first-class fare upon the certificate plan. A circular letter of instruction for this will be sent to each member in due time.

The Officers of the Congress are:—President, Reginald H. Fitz, M.D.; Secretary and Chairman of Executive Committee, William H. Carmalt, M.D., New Haven; Treasurer, Newton M. Shaffer, M.D., New York; Vice-President, ex-officio, Presidents of Constituent Societies.

Committee of Arrangements:—A. R. Shands, M.D., Chairman, 901 Sixteenth Street, N.W., Washington.

BIBLIOGRAPHY OF THE LATE DR. PETERS.

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THE SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.

The Sixth Congress will be held in New York, at the Academy of Medicine, 17 West 43rd Street, on September 9th to 14th, 1907. The previous congresses have been held at three-year-intervals in Paris, Vienna, London, and Berlin. Dr. James C. White, of Boston will be President of the Congress, and among the names of those forming the organization committee of twenty-six, is that of Dr. F. J. Shepherd, of Montreal. It may be stated that the laws of the Congress permit that the meetings are open to the public, and that any member of the medical profession in good standing may become a member by registering with the Secretary-General at or before the meeting and by paying the membership fee of five dollars. The secretary-general is Dr. John A. Fordyce, 80 West 40th Street, New York, who will supply any information desired. The preliminary draft of the Programme shows much material of interest and the names of many men of eminence. It is as follows: I. The Etiological Relationship of Organisms Found in the Skin in Exanthemata; Prof. W. T. Councilman, Boston; and Prof. Gary N. Calkins, New York. II. Tropical Diseases of the Skin: Dr. H. Radcliffe-Crocker, London; Prof. G. Riehl, Vienna, Austria; Dr. William Dubreuilh, Bordeaux; Dr. W. R. Brinckerhoff, Honolulu; Dr. J. H. Wright, Boston; Dr. C. W. Stiles, Washington; Dr. Baldomero Sommer, Buenos Ayres. III. *A.* The Possibility of Immunization Against Syphilis. Prof. A. Neisser, Breslau; Prof. Ernest Finger, Vienna; Dr. L. E. Leredde, Paris; Prof. T. de Amicis, Naples. *B.* The Present Status of Our Knowledge of the Parasitology of Syphilis. Prof. Erich Hoffman, Berlin; Dr. A. Buschke, Berlin; Dr. K. Herxheimer, Frankfort a. M.

CANADIAN HOSPITAL ASSOCIATION.

The Canadian Hospital Association was organized at a largely attended meeting at the Parliament Buildings, Toronto, on April 1st. Dr. McIntyre, Kingston, was chosen as chairman of the meeting and Dr. J. N. E. Brown, Toronto, secretary. The following officers were elected: President, Miss Louisa Brent, Hospital for Sick Children, Toronto; Vice-Presidents, Dr. C. K. Clarke, Toronto Asylum for the Insane; Dr. McIntyre, Kingston General Hospital; Mr. W. Kenny, Royal Victoria Hospital, Halifax, for the Maritime Provinces; Mr. H. E. Webster, Royal Victoria Hospital, Montreal; Mr. A. L. Cosgrave, Winnipeg General Hospital, for Manitoba and the West; Secretary,

Dr. J. N. E. Brown, Toronto General Hospital; Treasurer, Miss J. Patton, Grace Hospital, Toronto. The election of officers was followed by the adoption of a constitution.

OTTAWA MEDICAL SOCIETY.

The annual meeting of the Ottawa Medico-Chirurgical Society was held on March 22nd. The Society has now a membership of 80, and the meetings are well attended. The result of the elections for officers for the coming year is as follows: Hon. president, Sir James Grant; president, Dr. J. L. Chabot; first vice-president, Dr. E. B. Echlin; second vice-president, Dr. W. C. Cousens; treasurer, Dr. Thos. Gibson; secretary, Dr. Wm. Hartney; librarian, Dr. Robert Law; curator, Dr. F. W. C. Mohr. The council for the ensuing season will be composed of Drs. Small, Bradley, Brown, Hanna and Leggett.

MONTREAL GENERAL HOSPITAL.

During the month of March, 308 patients were admitted to the Montreal General Hospital and 315 were discharged. There were 20 deaths, 9 of which occurred within three days of admission. The average daily sick in the hospital was 208, and the highest on any one day 217. Outdoor consultations numbered 4,861. The ambulance made 157 runs. The average number of visitors at the hospital on visiting days was 334.

ST. PAUL'S HOSPITAL.

The following is the record from the St. Paul's Hospital for January, February and March. Diphtheria, admitted, 22; discharged, 24; died, 1; scarlatina, admitted, 11; discharged, 7; measles, admitted, 34; discharged, 54; other cases, admitted, 3; discharged, 3, Total, admitted, 71; discharged, 88; died, 1.

The meeting of the American Academy of Medicine, Specializing in Medical Sociology, will be held in Atlantic City, June 1st to 3rd, 1907. The following is the programme:—1. The Annual Address, President Cassey A. Wood, Chicago, A Medical Career and the Intellectual Life. 2. The Communal Life of Physicians; Its Cultivation and Value, Dr. Leartus Connor, Detroit. 3. *Symposium*:—I. The Relation of the Medical Profession to the Housing of the People. Dr. S. A. Knopf, New York City. II. General Aspects of the Housing Problem, Dr.

Gertrude C. Light, New York City. III. Discussion. Mr. Lawrence Veiller, New York City. 4. The Effect of Child-Labor on Physical Development, Dr. Alfred Friedlander, Cincinnati. 5. The Superiority of the Playground to the School-room, Dr. Woods Hutchinson, Arrowhead, Cal. 6. The Soldier as a Total Abstainer from Alcoholic Beverages, Dr. J. W. Grosvenor, Buffalo. 7. Insurance for Defectives, Dr. James A. Spalding, Portland, Me. 8. *Symposium*:—1. The Relation of the Medical Profession to Legislation. Dr. R. S. Connor, Cincinnati. II. The State Board of Medical Examiners, Dr. Henry Beates, Jr., Philadelphia. III. The Co-Relation of the Medical and Legal Professions to the General Public, Dr. T. H. Shastid, Marion, Ill. IV. The Duty of the Physician in Regard to Legislation to Promote Medicine among the Poor, Dr. Benj. Lee, Harrisburg. V. The Necessity of Co-operation in Movements for a National Department of Health, Dr. J. Pease Norton, New Haven. VI. Criminal Abortion, Dr. Henry W. Cattell, Philadelphia. VII. Discussion.,

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The action taken by G. L. Hagenburger against the authorities of Queens' University for damages, and to have his name restored to the list of graduates, has been abandoned. It has been found that he had obtained German medical credentials irregularly.

Dr. William Lame, formerly of St. Catherines, Ont., later of Lockport, N.Y., died on March 14th, in New York. He was a graduate of Toronto University and was in his 75th year.

Dr Daniel McIntosh Johnson, of Tatamagouche, N.S., died on March 12th, after a short illness. He graduated in 1875 from the Halifax Medical College.

The death is announced of Dr. M. A. Sheffield, of St. John, N.B., in the 71st year of his age.

Dr. Samuel Rescott Richardson, Medical Health Officer of North Toronto, died March 26th, at the age of sixty-five.

Retrospect of Current Literature.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

A. Lemierre, and M. Faure-Beaulieu. "Gonorrhœal Septicæmia and Pyæmia." *Gazette des Hopitaux.* 1906, p. 231 and p. 267.

Gonorrhœa is most often an affection localized in the genito-urinary organs. It is not exceptional, however, to see it accompanied by general symptoms and manifestations at a distance; and these have been the subject of many discussions. One should say at the outset that the difficulty experienced by observers in detecting the gonococcus itself in metastases has been the principal cause of the uncertainty which has long obscured the question; but to-day one applies to this class of studies more minute means of investigation and a more perfect technique, so that the nature of the greater part of these lesions ought not to be any further a matter of doubt.

The existence of a gonotoxine has been proven beyond doubt by the works of several investigators; but can this toxine diffuse itself throughout the system from the initial point of the infection? Can it, by itself, determine the secondary localizations, and what localizations does it especially determine? On the other hand has this toxine a purely local action, intimately connected with the gonococci itself? The experimental and clinical researches do not yet sufficiently inform us upon all these points. Likewise the role of the secondary infections, held in great importance by certain workers, appears to be a more and more restricted one in proportion as our bacteriological technique improves. These secondary infections really do exist at times; but they constitute the exception. More frequently the gonococcus itself is found in the inflammatory or suppurative areas in association with the microbes of secondary infection: streptococci, staphylococci, or pneumococci. On the other hand the testimony of many clinical observations, published during recent years, places beyond question the aptitude of the gonococcus to produce many and varied metastatic complications. It has been demonstrated that the gonococcus can invade the circulation and can proceed, through the blood, to form colonies by the arteries in different parts of the organism. The facts are so well known that no one can, so to speak, track the gonococcus in its different stages; at the point where it penetrates the veins, in the circulation, and in the metastases.

It is a long time since Richet and Voillenmier observed phlebitis in the corpora cavernosa in association with the gonococcus. More recently Burchardt, (in 1883), studying urethras attacked by gonorrhœal inflammation, found the gonococci in the venules of the inflamed mucous membrane as well as in the sanguineous lacunæ of the corpora spongiosa and cavernosa. Wertheim saw at certain points in the vesical mucous membrane of a woman, suffering from gonorrhœal cystitis and arthritis, thrombotic capillaries and venules which contained gonococci in abundance. In divers cases of generalized gonorrhœal infection one has observed phlebitis of the dorsal veins of the penis during life (Woss); and, at the autopsy, along with inflammation of the prostate and the vesiculæ seminales, phlebitis, at times suppurative, of the periprostatic venous plexuses. These facts amply demonstrate the route which the gonococcus takes to force an entrance into the general circulation; and how the local veins, once affected, offer no further resistance to anything which may be carried away by the blood current.

It is exactly in the circulation of patients suspected of generalized gonorrhœa that observers have had for several years the idea of searching for the gonococcus. The reports where this microbe are said to have been found by direct cover-slip examination cannot be received without reserve; but the cultivation of the blood during life has been followed up to the present time by successes, sufficiently numerous, to place beyond doubt the reality of sanguineous infection. Positive results in this direction have been obtained in thirty-two cases.

But in this bacterial infection it is altogether exceptional if the microbe, once launched in the general circulation, does not stop at one or several points in the organism and there set up lesions. This is the third stage of the gonococcus. To-day observations abound where one has been able to detect it both in life and at autopsies in the inflammatory or suppurative lesions which have been set up; in the articulations, endocardium, pericardium, pleura, lungs, skin, and sub-cutaneous cellular tissue.

It is, then, well demonstrated that gonorrhœal metastases are for the most part but the result of gonorrhœal infection. This is a theory which has been held for a long time in France by certain writers, but was especially developed by M. Balzer in his report in 1900 on "Les infections généralisées dans la blennorragie."

Like all the bacterial infections that of the gonococcus can be classified from a clinical and anatomical point of view under two different aspects. Sometimes the specific microbe passes into the circulation

and sojourns there for a shorter or longer period without originating any secondary localization; one has to do here with a pure septicæmia. Sometimes it stops at certain points in the body and sets up metastases. These may remain simply inflammatory or pass on to suppuration, realizing then that which one designates more particularly pyæmia. But it is impossible from a clinical and pathogenic point of view to separate these two orders of facts; because, if the inflammatory lesions do not always pass on to suppuration, this latter is always the consequence of a pre-existing inflammation. One should therefore, group the facts of gonococcal infection with secondary localizations under the name of metastatic septicæmia.

Gonococcal septicæmia, particularly in its grave forms, is encountered much more frequently in males. One has observed this during all ages. Most often it breaks out during the course of a florid gonorrhœa; but at times it appears when the gonorrhœa seems to have been cured for a long time, or when it exists merely as a chronic discharge, passing even unobserved. To be noted is the exceptional case of Griffon where the articular manifestations appeared before the urethritis.

The point of departure of infection in man is most often the urethra, especially when the inflammation has invaded the posterior urethra, and involved the prostate and the vesiculæ seminales; in woman the vagina, uterus and inflamed tubes, with or without participation of the pelvic peritoneum. But at times the source of infection can be less deeply seated. Macaigne and Finet have reported a case of gonorrhœa following a simple balanitis; and in little girls a vulvitis can become the point of departure of a generalized infection. Finally there exist the observations of gonorrhœal metastases appearing in the newly-born affected with gonorrhœal conjunctivitis.

Certain gonococci appear particularly virulent; to have a tendency not to remain localized but to readily invade the body. One has seen several individuals, contaminated at the same source, present metastatic localizations. Such are the observations reported by Vaquez, Laubray, and by Antomy; and an experimental fact of Ahmann is still more suggestive. This author having inoculated the urethra of a healthy subject with gonococci, isolated from the blood of a man affected with generalized gonorrhœal infection, saw not only a urethritis develop but a septicæmia with secondary localizations in the synovial sheaths and the lung.

If the virulence of the microbe is of great importance it does not seem to follow from the observations that general infection is especially

the lot of subjects previously resistant or blemished. One can only point to the observation of Barbiani where the infection developed in a diabetic who recovered, and that of Doleris where a mortal infection broke out in a woman six months pregnant. On the other hand the metastatic localizations readily pick out points of lessened resistance; arthritis appears at times in articulations previously affected by other infections. Hochman has noted a gonorrhœal metastasic phlegmon develop at a point contused a short time previously; and Busquet and Bicholenne have reported suppuration in a hæmatoma of some standing. But the process is particularly frequent in endocarditis where one sees the gonococcus become localized on valves which have been previously damaged. Finally, one has attributed the beginning of their infection to catheterization of an inflamed urethra; but in the great majority of cases no exciting factor can be made out.

W. G. M. B.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

In presenting an epitome of the most important contributions to obstetrical literature during the past year, it must be understood that the writer has not been able completely to cover all the possible material, and that what follows is but an attempt to cull from one's reading those matters which have appealed to one's own taste as being of value or of special interest.

First, let me say that while there has been no startlingly new work presented, there has been considerable activity in the study of the toxæmias of pregnancy and eclampsia.

Many cases of pubiotomy have been reported, and as a result of further experience, the operation has been perhaps better established as one of no mean rank in obstetric surgery.

Some interesting studies on the mechanism of labour have appeared, but will not be considered this evening as Dr. Little has undertaken to present them at a later date.

During the year, several volumes of the "Handbuch der Geburtschulfe" of von Winckel have appeared. This is the most important contribution to obstetrical literature which has appeared for years. Already seven large volumes have been published. The contributors are chiefly German-speaking authorities, and the work is most thoroughly comprehensive in character.

Read before the McGill Reporting Club, December 10th., 1906.

Two interesting papers on Puerperal Thromboses are worthy of notice. The first, by Vaney, (*Ann. de Gyn. et d'Obstet.,* Aug., 1906), is a lengthy and able study of the condition, and includes several cases.

He considers that a latent endometritis often of gonorrhœal origin, frequently pre-exists, and the changes incident to pregnancy have a marked effect in favouring damage to the vessel walls. Microbic intoxication adds itself to physiological auto-intoxication; hæmorrhage and thrombosis take place, and the condition becomes doubly dangerous after evacuation of the uterus. Extension may occur by continuity along the veins or along the lymphathics extending from the uterus, and then set up a periphlebitis in the pelvic veins with a resulting thrombosis.

He dwells on the indefinite character of the symptoms, but calls attention to a certain peculiar acceleration of the pulse first described by Mahler. This ladder-like (stair-case) increase in the pulse rate is described as being due to the effort of the heart to overcome the increase of resistance offered by the plugged vessels. Others ascribe it to the effect of absorbed toxins on the heart. In any case it is frequently present. Richter reports the sign as being present in 63 per cent. of a series of cases in the Dresden Clinics. In the balance of his cases its presence was hidden by other phenomena. This sign is only present when the thrombosis has extended beyond the peri-uterine veins, according to Richter.

Vaney thinks it is most important to recognize an unusual frequency of the pulse in these cases; for, after a period of physiological slowness of pulse more or less prolonged, it becomes accelerated, and presents the characters indicated by Mahler.

Rielander (*Monat. fur Geburt. und Gynak.,* Aug., 1906) reports 23 cases. He notes considerable blood loss and difficulty with the placental stage of labour in many of his series. He considers Mahler's sign of great importance, and found it present in two-thirds of his cases. In others it was absent, or other conditions made its recognition impossible.

He dwells on Mahler's sign, pain in the affected side of the groin, and meteorism as valuable subjective signs. Tenesmus may accompany thrombosis of the deep pelvic vein. These patients should not be allowed up till the pulse has been normal for at least a week.

An interesting paper by Cuff (*Jour. Obstet, and Gyn. of the B. E.,* May, 1906), on a somewhat allied condition may be noted. In discussing the operative treatment of puerperal pyæmia, Cuff reports a case of thrombosed pyæmic pelvic phlebitis, in which he opened the abdomen and tied off the infected thrombus. His first ligature was

placed close to the uterus, and the second towards the pelvic wall. The ovarian vein was found thickened and thrombosed up to just below the kidney where it joined the vena cava. A strong ligature was placed about it half an inch from the junction, the peritoneum having previously been incised and reflected. The patient made an uninterrupted recovery, there being no more chills or sweats. Other successful cases, six in all, have been reported by Michel, Bumm and Haeckel. Surgical intervention in these cases certainly seems to offer a valuable method of treatment, but its scope will be limited owing to the difficulty of diagnosis. Would not exploratory laparotomy be justified where the condition is suspected?

Recent contributions to literature dealing with the subject of heart disease in its relation to pregnancy are unanimous in expressing the opinion that the danger has been greatly exaggerated in the past. Ruegg in an article on this subject in von Winckel's Handbuch der Geburt. Bd. II, Tiel 3, P. 2259, goes thoroughly into the question from a statistical standpoint. As a rule only the graver forms of heart lesions are recognized in pregnancy, the lighter forms escaping observation entirely. The former mortality statistics are those of Schlayer, 48 per cent.; von Leyden, 55 per cent.; McDonald, 60 per cent.; and the report of Berry Hart of eight cases of mitral stenosis of which seven died. In 25 cases of heart disease in 4,000 births the author mentions but one fatality. In 2,000 cases in Marburg, Schnieder reports 14 cases of heart disease of which only one died, and Jess records 29 women with 40 births, and only one fatality. The general condition and cardiac compensation are of great importance. Should rest in bed, digitalis and other heart stimulants fail to relieve dyspnœa, pregnancy must be interrupted. The heart lesions *per se* constitute no indication for interruption of pregnancy.

French and Hicks in the *Jour. of Obstet, and Gynec. of the B. E.* September, 1906, discuss the subject of mitral stenosis and pregnancy. They analyzed the obstetric histories of 300 consecutive cases of mitral stenosis in women over 20 in Guy's Hospital. Of these 205 were married, and in 60 per cent. of them the ultimate heart failure had no relation to pregnancy. The average number of children was 4.5 per mother, and one of them had 17 children born alive. The authors conclude that the majority of patients with mitral stenosis bear children well, and that when heart failure develops in relation to pregnancy it is very often not with the first pregnancy, but after several pregnancies. They conclude that mitral stenosis does not render marriage unjustifiable, but that the risk run should be plainly stated. Ingram

and Longridge in the same journal record 50 cases of labour complicated by organic disease of the heart which they have compiled from the records of the Queen Charlotte Hospital. The mortality was 8 per cent., but in 68 per cent. of the cases labour took place without assistance.

During the past year there have been many contributions dealing with the subject of pubiotomy. A complete list of these, covering four pages, may be found at the conclusion of a study by Dr. E. B. Montgomery in the *Am. Jour. of Obstet.* for December, 1906. I cannot do better than give a summary of this paper which shows practically the condition of the subject to-day.

The operation of pubiotomy was devised by Gigli in 1894, his opinion being that a linear osteotomy made through the public bone at a point where the soft parts would be less liable to damage, would permit of the same pelvic enlargement as the older operation of symphysiotomy; his object being to obtain better union and an unimpaired gait, and to avoid injury to the urinary bladder so common in the earlier operation. These results have been attained, as the 300 cases recorded show.

The mortality of the 300 cases is between two and three per cent., and there has been no mortality in cases that were aseptic when coming under observation. Against this is to be placed the mortality of between ten and eleven per cent. and a morbidity of thirty per cent. in symphysiotomy.

The operation should not be employed in cases of great contraction of the pelvis, the lower limit being 7 cm. in which it may be safely employed. That a permanent enlargement of the pelvic diameters follows, the cases reported by Reifferscheide, Kannegeiser and Van de Velde in which subsequent labours have terminated spontaneously indicate; Montgomery thinks, that on every account pubiotomy must replace symphysiotomy, and that in a few years it will be found that a Gigli wire saw and carrier will almost entirely replace the use of the craniotomy instruments, the latter being reserved for use only on the dead child. He urges as an indication other than contracted pelvis for the performance of pubiotomy, impacted mento-posterior face presentations.

He then reviews the method of operation. Gigli and Van de Velde make use of the open method, and pass the saw from below upward. Tandler makes the incision below the symphysis, ties off the corpus cavernosum and periosteum, and cuts between. He passes the needle up from below, between the bone and the periosteum. Doderlein passes the needle through a small incision above the symphysis bringing it

out from below, the operation being practically a subcutaneous one. Seeligman, Walcher, Leopold and Duhrrsen all support the subcutaneous method of operation. Montgomery states that pubiotomy has won a permanent place among obstetric operations, and that in the near future it will be employed in suitable cases quite as frequently in our own as in continental countries.

Much has been written for and against what has been termed the biological theory of the etiology of eclampsia. That the fœtal elements derived from the chorionic villi play an important part in the causation of eclampsia has been argued by Viet, Ascoli, and Weichardt, a report of whose work has been presented here from time to time.

The work of Liepmann of Berlin is most interesting in this connexion, and I shall endeavour to trace the development of his theory of the placental nature and origin of the toxin of eclampsia, as presented in a series of his papers published recently.

In a study of the biology of the placenta in *Zeitschr. fur Geb.* Bd. LVI, 1905, Leipmann opposes Viet's theory of cell deportation and asserts that fœtal morphological elements do not bring about pathological conditions, or act physiciologically, but that the gradual passing over of placental albuminous material in solution from the fœtus to the mother is responsible.

He has been able to establish the fact that eclamptic placental albumin does not course in the blood, and that there is a distinct difference in the blood of a nephritic pregnant woman and that of an eclamptic. In the former a specific reaction can be obtained, but not in the latter. He considers the placenta has a well-marked organ specificity, and that this throws light on the passage of albuminous substances. The placenta has a distinct chemical power. The food substances derived from the maternal organism are first surrounded, then disintegrated, and finally rebuilt before they are capable of passing over into the fœtus.

By using powdered fresh placental material hardened in fluid air he has shown the presence in the human placenta of diastasic glycolytic and milk-sugar splitting ferments; and, most interesting, a ferment similar in its action to the pancreatic ferment.

He concludes that chemical processes play a role in the placenta just as in the intestinal tract. The large albumin molecule of the maternal organism is first broken up, and then freshly synthesized. What Harvey in 1651 suggested in his *Exercitationibus de Generatione Animalium* that the placenta could perform certain digestive functions for the fœtus is now through modern methods established as a scientific

fact. He mentions finding in the placenta of an eclamptic a toxic substance which produced convulsions when injected into rabbits.

In *Munch. Med. Wochenschr.* December 19th, 1905, he reports in detail his experiments with this toxic substance. Eclamptic placentæ were dried and powdered and suspended in salt solution. Normal placenta prepared in the same way gave no toxic results when injected into rabbits. Most animals injected with the eclamptic placental powder died within twelve hours, the symptoms being coma, and in many cases convulsions. He finds that the toxin found in eclampsia placentæ exhibits the following properties: it is firmly fixed in the albumin molecule; it is extremely toxic for rabbits; it is highly labile; it can be removed from the pressed out extract by reagents which precipitate albumin. Hitherto the extraction chemically has not been successfully accomplished.

The following is a brief summary of his facts:—

(1) In the eclamptic placenta a toxin is found which is absent from the normal placenta.

(2) It is identical with the toxin of eclampsia, for the more the toxin is absorbed from the organism the less there is found in the placenta; and conversely, the less the toxin that passes over into the maternal organism, the richer the placenta is in the toxin.

(3) The toxin evinces a marked affinity for the brain cells which neutralize it, and which are paralyzed by it.

(4) The toxin acts deleteriously on the renal parenchyma as well as on the liver. The injury to the kidney is secondary to the toxæmia—an already existent albuminuria may be markedly increased by the toxin. The chorionic epithelium appears to play an important part in the genesis of this toxin; the placenta is thus the place of elaboration and point of departure of the toxin.

Leipmann believes that the toxin is fixed by the brain cells as occurs in tetanus, and his experiments in this connexion are most interesting. A powder was made from the brain of three eclamptic patients after the method adopted with eclamptic placentæ. Nine animals injected with this brain powder gave no special reaction and lived. Either the toxin is fixed to the brain and thus neutralized, or the brain in these cases contains no toxin. As control experiment, he mixed toxic eclamptic placental powder with normal brain essence, and injected it in certain lethal doses with absolutely negative results in every animal. *In vitro* he has found the toxin completely disappears when shaken up with brain substance.

In a later paper (*Zeit. für Gyn. No.* 24, 1906), he sums up his theory of the placental origin of the toxin of eclampsia as follows:

Eclampsia is a toxic disease. The toxin is united with the albumin molecule, and is developed in the placenta probably through defective synthesising of the disorganized maternal albumin material by the syncytium. If the organism fails to neutralize this toxic albumin by means of a corresponding anti-substance, then it becomes poisoned. In this intoxication the brain, the liver, and finally the kidneys are the special organs affected and most damaged.

Interesting papers dealing with the toxæmias of pregnancy have appeared during the year by various American writers notably Williams I may be allowed to briefly recapitulate his principal facts. He defines three types of vomiting of pregnancy, the reflex, the neurotic, and the toxæmic, each dependent upon different etiological factors.

He points out that, in the toxæmic type, there is a marked increase in the amount of nitrogen excreted in the urine, as ammonia, and a decrease in that excreted as urea. That the condition is associated with a very characteristic lesion in the liver which is analogous to that associated with acute yellow atrophy of that organ. The condition may take an acute or a chronic form.

These liver lesions are degenerative in character and begin about the central vein of the lobule and gradually extend towards its periphery, Dr. Whitridge Williams concludes that:

1. The pernicious vomiting of pregnancy is not due to a single ætiological factor, and occurs as one of the three varieties, reflex, neurotic and toxæmic.

2. The reflex type is dependent upon the existence of abnormalities of the generative tract or ovum, and may be cured by their correction or removal.

3. The neurotic type is dependent upon the existence of a neurosis without demonstrable lesions, and is more or less allied to hysteria. It is the most frequent variety of serious vomiting, and can be cured by suggestion or a modified rest cure.

4. The toxæmic type is associated with characteristic changes in metabolism, and in fatal cases, at least, with lesions in the liver analogous to those observed in acute yellow atrophy. It may occur in the acute or chronic form, the former causing death in ten days or less, while the latter may persist for weeks or even months.

5. In the reflex or neurotic vomiting there are no manifest changes in the urine, while the toxæmic variety is characterized by a marked decrease in the amount of nitrogen excreted as urea, and a character-

istic increase in the amount excreted as ammonia. The so-called ammonia co-efficient arising from 3 to 5 per cent. to as high as 46 per cent. in one of my cases.

6. The toxæmic type is diagnosed by the examination of the urine, the reflex by careful bimanual examination of the genitalia, and the neurotic after the exclusion of the other two varieties.

7. The prognosis is excellent in reflex and neurotic vomiting, provided appropriate treatment is instituted, so that the termination of pregnancy is rarely indicated. In toxæmic vomiting, on the other hand, a fatal issue can be averted only by prompt induction of abortion, and even then the prognosis is dubious.

In the *Am. Jour. of Med. Sc.*, for September, 1906, the same author publishes a further series of cases of toxæmic vomiting, establishing more firmly the diagnostic value of the high ammonia co-efficient of the urine, and its importance as an index to treatment. He recognizes the fact that a high ammonia co-efficient in the urine can occur in other conditions of acid intoxication, and abnormal conditions of fat metabolism. He considers that we are not in a condition to state positively whether the metabolic changes result directly from the liver lesions, or represent an attempt on the part of nature to neutralize an acid intoxication, or whether we have to deal with other processes concerning whose nature we are as yet absolutely ignorant. He believes that the lesions in the liver are not the primary factor, but result from the circulation of some substance in the blood which has already caused the metabolic disturbance.

He argues against the identity of the toxic conditions in eclampsia and pernicious vomiting of pregnancy. In fact he believes that we should recognize that there are various toxæmias of pregnancy, and that while we know something about several of them, it is possible that other varieties exist of which we know absolutely nothing at present.

Tuskai (*Berlin. Klin.*, August, 1906) opposes Williams' theory of the toxæmic nature of pernicious vomiting, and mentions two cases in which the ammonia co-efficient was estimated. In one case it was as low as 1.1 per cent., and in another it was high, but remained high after the vomiting had ceased. He argues that pernicious vomiting is due to peritoneal irritation caused by defective nutrition of the peritoneum as it becomes stretched by the increasing uterus.

Wolf (*Phil. Med. Jour.*, April 21, 1906) opposes Williams' theory of increased ammonia output, and considers his conclusions are unwarranted. He quotes Folin as showing that a perfectly normal indi-

vidual may, under change of diet alone, exceed the figure laid down by Williams as a sign of positive danger. He states that any attempt to recognize or to diagnose degrees of disorder of metabolism through an examination of the urine for ammonia, aceton, aceto-acetic acid, or oxybutyric acid is lacking the support of any thoroughly sound physiological experiment groundwork.

Ewing and Wolf in a study on "The Clinical Significance of Urinary Nitrogen" in the *Am. Jour. Med. Sc.*, May, 1906, state that ammonia nitrogen is increased in conditions of dyspnœa and insufficient aeration of the blood. Diet profoundly influences it. Milk and meat diet increases it. In starvation and inanition it is invariably increased. They state that in the present state of our knowledge one cannot rely on the presence of ammonia compounds, aceton and B-oxybutyric acid in the urine either as an index or as a measure of intoxication.

The authors state that no single estimation is of any uniform value. Neither the total nitrogen nor the urea, nor ammonia, nor uric acid, nor creatinin, nor the undetermined nitrogen. No clinical indications can be built on their estimation. The authors point out that the more rational method is a study of the nitrogen distribution as a whole, and to determine what practical value may attach to the findings in the urine as expressed by the nitrogen partition. The authors state that there is not sufficient data regarding the composition of the normal urine, as we do not know what are the standards of all types of normal urine, nor what amount of latitude must be allowed to distinguish the normal from the pathological. The authors believe that by a complete analysis of the urine, serious importance may be known to attach to slight expressions of disorder such as headache, transient pains, in several conditions where they are now overlooked or vaguely appreciated, and in this field the determination of the nitrogen partition, will give very valuable clinical information. Pregnancy and its influence they consider a very complex subject.

From these observations the authors have been led to believe that the partition of the urinary nitrogen may be taken as an index of metabolic disturbances escaping other methods of detection.

In the *New York Med. Jour.*, May 5, 1906, Dr. J. Clifton Edgar reports his study of the "Clinical Manifestations of the Toxæmia of Pregnancy." While he admits that various toxæmias may occur in pregnancy, he believes that a special autotoxic state of pregnancy exists, or rather that the pregnant state predisposes, or favours, a condition of toxæmia peculiar to the pregnant woman.

He defines the toxæmia of pregnancy as a state of the blood due to faulty metabolism, and *possibly* arising from hepatic insufficiency. The

origin of the toxic material is unknown and its nature uncertain. He thinks that it is generally conceded that the toxic substances are metabolic in origin, and that there is a distinct connexion between these two metabolic changes and the pregnant condition itself; that these toxic substances in the blood are more or less identical in pregnancy, pernicious vomiting and eclampsia alike, and that they, in some cases at least, first cause lesions in the liver and subsequently in the kidneys. He believes that we may be able to detect an autotoxic state by the marked changes in metabolism exhibiting themselves in characteristic urine conditions before lesions of the kidneys manifest themselves. He dwells on the fact that the urea output has been unreliable as the indication of eclampsia.

Patients with low urea percentages may show none of the clinical symptoms of toxæmia, and patients with normal urea percentages may pass into eclamptic convulsions or die of pernicious vomiting of pregnancy.

He thinks well of the work of Ewing and Stone on the study of the nitrogen partition in toxæmia. This clinical index is based upon the supposition that even mild cases of pregnancy toxæmia cause errors in metabolism probably due to lesions in the liver cells, and that as a result metabolism is imperfectly carried out and various unoxidized compounds are formed, which in themselves are poisonous in character. Of these unoxidized compounds replacing the total nitrogen the most significant at present for danger signals of toxæmia appear to be the ammonia nitrogen and the ammonio-acid or undetermined nitrogen.

He states, "I do not believe that as yet sufficient material has been gen excreted as urea nitrogen, ammonia nitrogen, and ammonio-acid, collected to permit us to formulate from the percentages of total nitro- or undetermined nitrogen, any rule to guide us in the determination of the severity of the pregnancy toxæmia. These relations vary in the normal individual and are dependent upon the nitrogen intake, and many other sources of error are possible."

He thinks that this chemical urinalysis of the urine for the so-called nitrogen partition promises much, but much work remains to be done on a large number of urinalyses both of those who do, and those who do not show clinical symptoms. From his own material carefully studied he hesitates to formulate rules for a guide to the diagnosis of an impending or existing pregnancy toxæmia. He states that in most of his cases in which the clinical picture of a toxic condition was present, such as headache, giddiness, excessive vomiting, slight jaundice, mental and physical torpor, high arterial tension, itching of the skin,

etc., the complete chemical examination of a twenty-four hour specimen of urine showed errors in metabolism.

In two years he has had twenty-four patients under his observation, and has had sixty-two chemical urinalyses made. The urinalysis included, in addition to the total nitrogen and the nitrogen percentages or co-efficients, the reaction, specific gravity, tests for albumen, sugar, indican, urobilin and casts, and in most of the specimens for acetone and aceto-acetic acid, provided the intake of food was sufficient to cover the heat loss. He bases his findings on the nitrogen table of Folin. The characteristics of a urine indicating normal metabolism depends upon the relation of the nitrogen of the nitrogenous compounds of urine to the total nitrogen. Abnormal metabolism is indicated by a urine in which the various percentages of the total nitrogen excreted as urea nitrogen, ammonia nitrogen, and undetermined nitrogen, depart from the generally accepted normal standard for the given quantity of total nitrogen excreted in the twenty-four hours.

Edgar first records eight cases of non-toxic pregnancies in which the chemical urinalyses accord with the normal standard. In some of these the total nitrogen excreted was low, but the nitrogen partition remained about normal. Six cases of toxæmia vomiting then follow. One of which having the clinical picture of pregnancy toxæmia well marked, a twenty-four hour specimen of the urine failed to show faulty metabolism on a chemical analysis. In four of these six cases the proportion of total nitrogen excreted as ammonia nitrogen ranges high, reaching 48.4 per cent. in one case in which spontaneous premature labour took place, the patient making an uninterrupted recovery. She had an alcoholic history. One or two of these cases showed a rather high co-efficient of undetermined nitrogen. In these cases persistent vomiting was a prominent symptom.

Six cases of pre-eclamptic toxæmia in which vomiting was not a prominent symptom are then recorded. Of the nineteen of the urinalyses the percentage of total nitrogen excreted as ammonia nitrogen only reaches ten in one instance. The undetermined nitrogen percentage ranges high throughout the series. Albumin was found but once, and in no instance were casts present. He divides these cases into those of the hepatic, and those of the renal type. The toxæmia of pregnancy class showed symptoms of toxæmia with nausea, vomiting, recurrent jaundice, as prominent symptoms, there being an absence of albumin, casts, puffiness of the face, and œdema of the extremities. The nephritic toxæmia class, on the other hand, have for their prominent symptoms, severe headache, disturbance of vision, puffiness of the face,

œdema of the extremities, together with persistent albuminuria, and the presence of casts—symptoms pointing to renal insufficiency. In one of the cases the nitrogen partition was practically normal.

Three cases of eclampsia in which eight urinalyses were made are then recorded. Edgar distinguishes two varieties of eclampsia. First, an eclampsia of nephritic origin or of renal insufficiency, and, secondly, an eclampsia which is a natural consequence of a neglected toxæmia of the kind peculiar to pregnancy, which he designates hepatic. A faulty nitrogen partition may exist in both varieties, but is especially marked in the eclampsia following the toxæmia peculiar to pregnancy. The first case showed abnormal urea ratio, but a high undetermined nitrogen, and very low ammonia nitrogen. Patient made a good recovery, being delivered of a living child. The second case was admitted to hospital in an unconscious condition, after having been delivered by forceps of a living child. She had six convulsions in all. The first examination of urine showed markedly abnormal nitrogen partition. The undetermined nitrogen being exceptionally high. Third case was of the hepatic type. Six months pregnant, and was admitted in a condition of coma. The patient died, and the liver showed the presence of very numerous anæmic infarcts, one-half the bulk of the organ being thus rendered completely neurotic. Edgar states that the entire liver lesion was unique in his experience, and that he is unable to offer a satisfactory explanation of the origin of the lesions; but he thinks they must be regarded in general as infarcts due to occlusion of blood vessels.

He concludes his paper by stating that we are beginning to see a great light ahead in the direction of imperfect metabolism, as a possible solution of the problems in connexion with pregnancy toxæmia.

OPHTHALMOLOGY.

UNDER THE CHARGE OF J. W. STIRLING.

Derby G.S., "The Bactericidal Power of the Various Silver Preparations." *Boston Medical and Surgical Journal,* September 27th, 1907. Marshall, C. R. and Neave, E. F., *British Medical Journal,* August 18th, 1907.

Derby, as the result of rather exhaustive investigation, groups the silver preparations into three classes. The first includes the non-irritating ones of low bactericidal power, such as argyrol. The second includes the more effective and slightly more irritative bactericides, such

as protargol. In the third one the very irritating preparations, such as nitrate-of-silver, argyrol, protargol, largin, ichthargin, albargin, argonin, argentamin. The staphylococcus aureus was utilized for the research work and markedly consistent results were obtained. Nitrate-of-silver was found efficient in one half to two per cent. solutions, next to it came protargol in two to four per cent. solutions, argentamin is very irritating, but in five per cent solutions is markedly efficient, argonin is less irritating and not such an active germicide as the preceding preparation. Argyrol is found to be very weak in its germicidal action, a growth of the aureus being obtained after exposure to a fifty per cent solution for from one to two hours; the action is uncertain and the age of the solution does not appear to be of importance.

Derby draws attention to Verhœff's observation that if human serum be added to protargol its bactericidal power is immediately and completely destroyed. He then tested the various silver preparations on these lines and found a marked diminution in the bactericidal action of all solutions. He draws the inference that in the protective power of the tissue fluids, lies the principle reason for inefficient action of antiseptics. For if a drug has deep penetrating power, yet of what use is it if it reaches the disease focus diluted and with its bactericidal power almost gone.

Marshall and Neave's investigations were made at the request of the therapeutic committee of the British Medical Association. The results were obtained with mixed culture and with the pure culture of staphylococcus pyogenes aureus. They observed first, the time taken by minced cooked beef to putrefy in the presence of solutions of silver compounds of known strength. Secondly, they inoculated an agar medium containing a definite quantity of various silver compounds. The experiments show that as regards bactericidal action the various silver compounds fall into three groups. (1) Those which are powerfully bacterial. (2) One, Nargol; much less powerfully bactericidal. (3) Two, Argyrol and Collargol; which possess practically no bactericidal action whatever. The first group includes silver nitrate, silver fluoride, actol, itrol, argentamin, argentol, albargin, argonin, ichthargan, largin, novargan, and protargol. As argyrol and collargol are not bactericidal, it is evident that the amount of silver which a compound may contain is no criterion of its bactericidal power. If the statements of many clinicians regarding the good effects, from the use of argyrol are to be believed, the results obtained cannot be due to its bactericidal action.

WURDEMANN H. V., and HOGUE G. I. "Treatment of Partial Optic and Retinal Atrophy by Electricity and Massage." January, 1907.

The indiscriminate use of electricity and massage by quacks has thrown much discredit upon what are undoubtedly therapeutic agents of much value. The authors of this paper after lamenting this fact present cases in support of this treatment if properly applied. The main contra-indication to their use is the acuteness of any ocular disease. On the other hand chronic conditions, and especially cases of partial optic atrophy, undoubtedly show surprising results from this treatment. The negative or stimulating pole is applied over the eye and the positive at the nape of the neck. Great care has to be exercised in using a sufficiently weak current at the outset. Electricity and massage would appear to relieve tension in glaucoma, to assist in clearing corneal capacities and to be of general curative value in choroiditis, retinitis pigmentosa, phlyctenular-keratitis, etc. Leduc of Nantes considers the effects of electricity to be due to the redistribution of the ions in the tissues. In the migration of ions which takes place, the cells of the tissues are stimulated to increased energy, and regeneration occurs. Electricity possesses the power of increasing nutrition, and excretion of waste matter and causes local anesthesia. The positive pole has anæsthetic sedative and hemostatic action. The negative pole has a stimulant action, quickens absorption increases moisture, dilates the blood vessels and lymphatics.

SPICER HOLMES. "Metastatic Affections of the Eye." *Medical Press*, October 24th, 1906.

Of the four cases reported the first was that of a young man suffering from boils on the buttocks. A retinal abscess developed which, after the eye was enucleated, was found to contain in its centre a large mass of staphylococci.

In another the patient had well marked phlebitis of the retinal vessels in the one eye, and slightly in the other. This condition followed the appearance of a large boil in the neck. The onset of the ocular symptoms was sudden and attended with much pain and loss of sight. In a third case, retinal phlebitis and keratitis profunda followed a serious attack of diarrhœa, and ptomaine poisoning. The last case reported was one of diffuse choroiditis occurring in a young man suffering from a large crop of boils on the neck.

DeSchweinitz G. E. "Concerning the Sign in the Retinal Vessels of Persistent High Arterial Tension." *Ophthalmic Record,* August, 1907.

The author insists upon the importance of recognizing vascular sclerosis in the retina as evidenced by a beaded appearance of the arteries, loss of transparency, corkscrewing of the smaller arterial twigs, perivasculitis and compression of the veins by the arteries where the latter cross them. The result of the condition is dangerous both to sight and to life. It indicates a corresponding condition of the cerebral vessels. Dietetic and therapeutic treatment is urgently indicated.

Darier. "Double Blennorrhagic Iritis. Poly-Gonococcic Arthritis. Chronic Urethral Discharge. The Effect of Intravenous Injections of Collargol." *La Clinique Ophthalmologique,* July 25th, 1906.

A patient with acute exudative iritis of three weeks duration consulted Darier. Atropin, dionin, hot fomentations, salicylate of soda and aspirin were used without effect. Intravenous injections of one per cent. collargol were then made every day. Two or three days after the first injection a febrile reaction occurred, but on the following day there was an improvement and the treatment was continued.

The intravenous injections were increased to 10 cubic centigrams and after six of them further improvement was observed. The treatment was then continued until 100 grams of the collargol had been injected during six weeks, when a cure was effected. J. W. S.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The thirteenth regular meeting of the Society was held Friday evening, April 5th, Dr. F. G. Finley, President, in the Chair.

CONGENITAL DISLOCATION OF THE HUMERUS ACCOMPANIED BY A BRACHIAL PARALYSIS.

A. MacKenzie Forbes, M.D., exhibited four cases with this condition in children.

IS CANCER CONTAGIOUS?

A Lapthorn Smith, M. D., read the paper of the evening on the contagiousness of cancer, with lantern slides.

W. W. Chipman, M.D.:—While I think that all knowledge on the subject is useful, still I do not know that I could quite follow the arguments set forth throughout Dr. Smith's paper. There is, of

course, the never-to-be-forgotten fact that we are not at all determined as to what is the actual cause of cancer. While we continue in this position we cannot be dogmatic. I think Dr. Smith deserves a great deal of credit for the enterprise and energy with which he has hunted out the cases to illustrate the main thesis of his paper, and many of these cases are certainly significant.

In regard to the reported cases of different persons, in no degree related, but occupying at different times a cancer-infected house, becoming themselves cancerous, we must always allow very largely for coincidence. And cancer being as it is, so prevalent and so widespread a disease, the wonder should be not that we have so many cases of such coincidence, but rather that we have so few.

I have never been taught and have never believed that cancer was hereditary; as far as my knowledge goes I think this view has never been seriously held. The most that can be said, I think, is that in certain families there seems a certain predisposition toward, a weak resistance against, the invasion of this disease.

As regards the ætiology of cancer, the two theories still hold the ground about equally—the organismal and the developmental, cell-inclusion, theories. If cancer is organismal in origin it is practically certain that it is infectious, or more probably contagious, for so is every other organismal disease.

From several of the instances of infection quoted to-night we are asked in addition to believe that the organism, either within the body or outside it, has the faculty of remaining inert, though potentially pathogenic, for long periods of time; in different instances for periods of several, two or three, years. While such an infection, at first sight seems improbable, there is nothing in Dr. Smith's request that is unparalleled or unscientific.

Three years ago, I saw some of Gaylord's work of which Dr. Smith has spoken. This work did not appear to me to be convincing. At that time the general feeling seemed to be, as voiced by both Welch and Councilman, that a large part of this work was open to destructive criticism.

The last observation that Gaylord has made is, however, indeed significant. He tells us that healthy rats kept successively in an uncleaned, cancer-infected cage, in turn developed cancerous disease. If this experiment is substantiated it is practically proof-positive that, at least so far as rats are concerned, cancer is infectious.

The amœba that is found outside in the animal kingdom is not to be confounded in any manner with the protozoa of cancer as described by Gaylord.

The practical outcome of it all is, that we as a profession, while the ætiology of cancer remains unknown, should be willing to adopt any and every means, and even if apparently somewhat superfluous, to prevent the spread of this disease. Doubtless it would be wiser to treat all cases of advanced cancer with as much care as, for example, typhoid fever. I believe it is a fact that in the history of surgery there has been no recorded case of a surgeon having suffered any local infection from any handling of cancerous tissue. The surgeons remain as free from cancer-infection as the members of any other profession. Nevertheless, it would be wise, I think, to avoid even "the appearance of evil" by practising a more careful isolation upon the cancerous patient. So it is possible we should secure to the healthy individual a greater security from this disease.

A. Lapthorn Smith, M.D. Von Leyden's conclusions in regard to the causation of the disease are based upon the parasitic origin of the disease. Czerney is also inclined to adopt the parasitic theory. What I would ask in the meantime is that those who have it, and those about to contract it, be given the benefit of the doubt.

MALERIA WITH BLOOD CHANGES OF A SEVERE CHARACTER AND RETINAL HÆMORRHAGES.

F. G. Finley, M.D., read the report of a case showing this condition.

This patient, a sailor, æt. 20, was admitted to hospital, February 9th, in a condition of great prostration and anæmia. Being a Norwegian no history was at first obtainable, and the diagnosis was made by the discovery of the parasites in stained specimens of blood.

It was subsequently learned that he had reached Panama on his ship on December 16th, and remained there a week. He was badly bitten by mosquitoes when getting out the cargo on the quays. On December 25th at sea the whole crew of twenty men began to have severe chills with fever and sweating, and in this man's case these symptoms continued daily for five days, being checked by quinine. The chills, however, began again in two days, and continued daily for a period of almost six weeks. He has grown pale and weak, and his sight has become poor. Examination showed a tall and rather poorly nourished youth. The skin and mucous membranes were excessively pale, and the skin of a sallow tinge. There was cough with purulent expectoration and rhonchi heard over the chest. The heart was somewhat dilated, dulness extending from the right sternal border to just within the nipple and a systolic murmur was present at the pulmonary region. The pulse was of low tension, 78 mm., and of small volume. The blood count showed r.b.c. 1,137,000, w.b.c. 5,800, Hg. 19 per cent. A number

of normoblasts were seen and great numbers of plasmodia malariæ in the red cells.

The tongue was dry and brown, the teeth and lips covered with sordes. The spleen was not palpable, but its area of dulness was increased, reaching the costal border, whilst the liver dulness measured 5 in.

The fundi, examined by Dr. Mathewson, showed large dark hæmorrhages in the lower and outer parts of both retinæ, extending into the macular regions, and there was slight blurring of the edges of the discs.

The temperature for the first four days presented daily rises varying from $104\frac{2}{5}$ to $102\frac{3}{5}$, and not falling below $99\frac{2}{5}$ in the intervals.

Further repeated examinations of the blood by Drs. Lyman and Lomer, to whom I am much indebted for their careful studies, showed that the parasites were all of the tertian variety. They were present in enormous numbers, six or eight forms being seen in some fields of 1-12 oil immersion lens. In fresh specimens young extra-corpuscular forms were seen moving freely about.

Owing to the profoundly anæmic condition, hydrochlorate of quinine was administered hypodermically in fifteen grain doses on the 11th and 12th. The first dose was administered by mistake three hours after the chill, and on the 13th a rise of temperature to $102\frac{1}{5}$ took place. On the 12th the dose was given an hour and a half before the chill, and on the 14th the temperature rose only to $100\frac{1}{5}$, and during this day remained slightly elevated, probably owing to the bronchitis.

A blood count made on February 23rd showed 2,140,000 r.b.c. 4,863 w.b.c. and 42 per cent. Hg., and on March 4th, 2,215,000 Hg. 54 per cent.

The administration of quinine was stopped on February 20th, and on March 3rd a relapse took place, accompanied by fresh retinal hæmorrhages. The borders of the disc were, however, sharply defined, the old hæmorrhages showed as black spots, and the sight was good.

The chief interest in the case was the high grade of anæmia, approximating to the pernicious type, and the associated retinal hæmorrhages, but differing from it in the absence of megalocytes.

The opportune moment for administering quinine in malaria is shortly before the chill so as to destroy the young free forms in the blood; owing to the first dose of quinine being administered after the chill these forms were not completely destroyed, and at the end of the 48-hour cycle the temperature rose to $102\frac{1}{5}$. Subsequent doses were better timed and proved effectual in destroying the young brood of parasites and checking subsequent paroxysms.

FOUR UNUSUAL CASES OF MASTOIDITIS.

GEO. H. MATHEWSON, M.D., read the report of these cases. It appears at page 319 of this number.

The fourteenth regular meeting of the Society was held Friday evening, April 19th, 1907, Dr. F. G. Finley, President, in the Chair.

TUMOUR OF THE SPHENOIDAL LOBE WITH DREAMY STATES.

C. K. RUSSEL, M.D., read the report of this case and exhibited the patient before the Society.

FUNCTIONAL SCOLIOSIS.

A. T. MUSSEN, M.D., read the report of this case and exhibited the patient.

D. A. SHIRRES, M.D.:—Dr. Mussen is to be congratulated on the careful record he has kept of this case. Many, many hours were spent in the treatment and the results are very satisfactory, though had we been able to keep the patient in the hospital for a longer period still better results would have been obtained.

POLYPOIDAL DEGENERATION.

E. H. WHITE, M.D.:—This pathological specimen is interesting rather from the degree to which the process has gone on than the condition which it represents. It is a mass of polypoidal tissue springing from the inferior turbinate. The condition was present much more extensively on the left side, and seems to have gone on to the full capacity of the nostrils, and on the left side a considerable space was afforded by a marked deflection of the septum. Pathologically it represents the same structure as the ordinary mucous polyp of the nose. It is covered with a single or but a few layers of a thin covering of columnar epitnelium. These tumours are frequently described as papillomata, which is wrong, as they are very rare, while this condition is common. The specimen from the right side of the nose shows better the form of the turbinate, but to a lesser degree; a papilloma would be in the mucous membrane rather than in the connective tissue.

The second specimen was a rather unusual tonsil removed from a child three years of age, which did not cause very marked symptoms, though, on examination, it completely filled up the pharynx. The growth was only on one side; there was no tonsil on the other. It was attached by a small pedicle. The depression in the specimen is due to deficient expansion. On section it shows nothing but the ordinary structure of the tonsil. The arrangement is somewhat different

between the apparent overgrowth of the lining of the crypts which has caused the unusual lobulated appearance.

H. S. BIRKETT, M.D.:—Those two cases are of more than ordinary interest. In the case of the polypoidal hypertrophied turbinate the patient simply complained of obstructed breathing. In my experience the condition of this specimen was absolutely unique. In this case of the enlarged tonsil the child suffered a great deal from attacks of suffocation coming on generally when taking the recumbent position. The appearance of the tonsil would lead one to think of a possible malignant growth, and the possibility of hæmorrhage in removing this was considered. We attempted at the time of operation to photograph the tonsil in position, but failed to do so. The tonsil was more or less pedunculated, which in my experience is quite rare.

TREATMENT OF THE LOCALIZED INFECTIONS BY BACTERIAL INOCULATION, AFTER THE METHOD OF WRIGHT.

E. M. VON EBERTS, M.D.—This paper gave an account of the technique employed, and contained a record of a series of cases treated. The results appeared to be in conformity with those obtained by Sir A. E. Wright and recorded by him from time to time. The paper was discussed by Drs. Finley, Hamilton, Shirres, Russell, and Shaw. Dr. von Eberts replied.

The identity of dourine, or maladie du coit, as seen on this continent and hitherto diagnosed by American and Canadian veterinarians from clinical manifestations alone, with the disease as known in Africa and Asia, as well as in Southern Europe, is thus fully established. A detailed report of the discovery and of the work which led up to it, as well as of the steps subsequently taken, will be issued at an early date.

Pathologists will be interested in the information that the trypanosma equiperdum has been found in a mare clinically affected with dourine, or maladie du coit, at the quarantine station established by Dr. Rutherford, veterinary director-general of the Department, at Lethbridge, Alberta in 1904. The first demonstration was made by Drs. E. A. Watson and M. V. Gallivan on February 11th, 1907 in material taken from a vesicle on the mucous membrane of the vagina of the animal above referred to, which was found to be affected with dourine on the premises of her owner, Mr. R. Tiffin, near Lethbridge, on December 21st, 1906, and subsequently removed to the quarantine station for the purposes of experimental observation.

The disease was successfully transmitted in February to a yearling filly and the parasite subsequently observed in observations on a fresh pla-

que. The finding was confirmed by Dr. C. H. Higgins, pathologist of the department, on March 21st, and was further observed in preparations taken by him on the 23rd, and 25th, of the same month.

The Canadian Medical Protective Association was organized at Winnipeg, in 1901, under the Auspices of the Canadian Medical Association. The objects of this Association are to unite the profession of the Dominion for mutual help and protection against unjust, improper or harassing cases of malpractice brought against a member who is not guilty of wrong-doing, and who frequently suffers owing to want of assistance at the right time; and rather than submit to exposure in the courts, and thus gain unenviable notoriety, he is forced to endure black-mailing. Experience has shown how useful the Association has been since its organization. The Association has not lost a single case that it has agreed to defend. The annual fee is $3.00 at present, payable in January of each year. The Association expects and hopes for the united support of the profession. Executive:—President, R. W. Powell, M.D., Ottawa. Vice-President, J. O. Camarind, M.D., Sherbrooke. Secretary-Treasurer, T. F. Argue, M.D., Ottawa. Solicitor:—F. R. Chrysler, K.C., Ottawa. Provincial Executives:—Ontario—E. E. King, Toronto; I. Olmsted, Hamilton; D. H. Arnott, London; J.C. Connell, Kingston; J. D. Courtenay, Ottawa. Quebec—H. S. Birkett, Montreal; E. P. Lachapelle, Montreal; J. E. Dube, Montreal; R. R. Ross, Quebec; Russell Thomas, Lennoxville. New Brunswick—T. D. Walker, St. John; A. B. Atherton, Fredericton; Murray MacLaren, St. John. Nova Scotia—John Stewart, Halifax; J. W. T. Patton, Truro; H. Kendall, Sydney. Prince Edward Island—S. R. Jenkins, Charlottetown. Manitoba—Harvey Smith, Winnipeg; J. A. MacArthur, Winnipeg; J. Hardy, Morden. North-West Territories—J. D. Lafferty, Calgary; M. Seymour, Regina. British Columbia—S. J. Tunstall, Vancouver; O. M. Jones, Victoria; Dr. King, Cranbrooke.

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FUNCTIONAL SCOLIOSIS.

BY

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This case was admitted into the Montreal General Hospital, January 15th, 1907, under the care of Dr. Shirres to whom I am indebted for permission to publish the following report.

E. B., a female, single, aged 22, complained of curvature of the spine with pain in the dorsal region, increased by movement. Prominence of the right hip was noticed with pain extending downwards through the hip, thigh, and calf. There was lameness in walking with stiffness in the right hip joint, and an apparent shortening of the right leg.

Personal History.—She was born in Manchester, England, in 1885. Throughout childhood she always enjoyed good health. In 1899, when she was 14 years old, while playing in a field she fell from the top of a load of hay, landing on her back with such force that she was stunned for some time. The same day she was able to run about again. During the following two years she did not notice any bad effects from her accident.

In 1901, she left the Old Country for Canada. One stormy day, while at sea, she slipped and fell down the companion-way from the saloon to the main deck. Her back was severely bruised and remained stiff for several days.

From this time up to the beginning of the present illness there was never any pain or soreness of the spine. During this time she worked as a general servant. One morning in 1903, she first felt a severe pain in the calf of the right leg. It was not of long duration and did not interfere with her duties. For the next two-and-a-half years the pain was frequently present but always limited to the calf of the right leg.

In the summer of 1906, she went through several months of severe moral and physical strain. Her physical condition was finally relieved by a successful operation for abortion, but the anxiety had been a great drain on her nervous system, and it was from this time that she steadily grew worse.

The pains in the calf of the right leg increased in severity, and then extended up to the hip. In the latter part of September, 1906, she began to attend the Out-Door Department of the Royal Victoria Hospital.

For the next three weeks she was under treatment, but the pain gradually became constant and so severe, as to finally make work impossible, and in October, 1906, she entered the Hospital. She received constant treatment throughout October and November, 1906, and was greatly relieved. In December, 1906, the spine was found to be deformed. She left the Hospital on January 7, 1907, her condition being about the same as at the time of this report.

Her condition, on admission to the Montreal General Hospital, on January 15th, 1907, was that of a well nourished intelligent girl of 22 years. The skin and mucous membranes were normal, the bowels regular, and menstrual periods normal. Weight was 128 lb., states she has lost 34 lb. in the last year. Heart and lungs are normal; also temperature, pulse, and respiration and the urine. When standing up a marked curvature of the spine was observed, the body was bent forwards and to the right. There was a great prominence of the left hip. The pelvis was tilted up on the left side. The weight of the body was carried mostly on the left leg which was straight, the right being flexed at the knee. Her walk was slow, careful and shuffling in character.

When getting up on the table for examination great difficulty was noticed. She lowered herself slowly till she reclined on the right side. Her actions all showed carefulness in guarding her back and left hip.

A dorsal decubitus was impossible owing to the prominent and and painful condition of the spine. The right leg could not be fully extended owing to the stiffness in the hip-joint with pain and fulness in the groin.

Examination of the spine showed a lateral and backward curvature to the right, most prominent in the lower dorsal region. There was no localised tenderness but a general hyperæsthesia over all the spinous processes.

The left hip showed a marked prominence accentuated by the back being bent to the right. The pelvis was tilted up to the left side.

Passive manipulations of hip joint showed free and easy movements in all directions.

The right hip was flat in comparison with the left. There was stiffness and rigidity in the joint, and a fulness painful to palpation in the groin. On attempting full extension of the thigh there was pain and limitation of movement. Abduction was also limited and caused pain; but flexion, adduction and rotation were free and painless. The general condition of the body was healthy, and the limbs were of equal size and length.

Reflexes.—The organic tendon and superficial reflexes normal with exception of the pharyngeal which was slightly diminished.

Sensation.—Subjectively, severe pain was complained of about the mid-dorsal region, also pain in the right hip and down the back of right thigh and leg. The most severe pain was felt in the right leg between the knee and the ankle. This was constant in character and generally localised over the anterior tibial region. Occasionally there would be an exacerbation of the pain, but this could usually be relieved by pressure over the upper part of the tibialis anticus. At times the pain would be most severe in the lower part of the right leg and the foot. When this was the case pressure beneath the exterior malleolus relieved it.

Objectively, there was general hyperæsthesia over the whole spine, and marked tenderness on deep palpation over the course of the sciatic, but there was no suggestion of Kernig's sign. To heat and cold, sensation was slightly diminished in the right leg, but through the rest of the body it was normal to touch, pain, heat and cold. The electrical sense was normal.

During the latter part of this examination the patient had been lying on her left side. When she got up and stood on the floor I was surprised to see the right leg perfectly straight and supporting the weight of the body, the right hip prominent, the pelvis being tilted up on this side, and back inclined slightly forward and to the left. This was exactly opposite to her previous condition. After persisting for a few moments there was a gradual change to the former state. When questioned about this she stated that, when she lay on the left side the right hip was pushed out and was very painful, but this lasted only a short time.

The following photographs illustrate these two positions.

The one to the right, No. I. shows the usual condition. After lying on the floor on her left side for twenty minutes, the right hip became the more prominent and remained so long enough to obtain the second photograph, No. II.

Special Senses.—Taste, smell and hearing normal. Eyes: pupils were equal and active to light and accommodation. The visual fields showed bilateral concentric contraction of the colour fields. This condition is most marked in the right eye. The fundi were normal. The perimeter chart of January 18th, 1907, here reproduced shows the condition three days after admission.

The chart of January 30th, 1907, No. II illustrates the improved condition twelve days later.

Musculature.—The limbs are of equal size and well-developed. The power in the left leg and thigh is normal. In the right it is difficult to determine owing to the pain produced in the hip by voluntary movement, but there is no reason to expect any impairment of power. The result obtained from this examination suggest then, either Potts' disease associated with morbus coxæ, or a functional condition.

A skiagraph of the right hip was taken. This showed the joint to be normal.

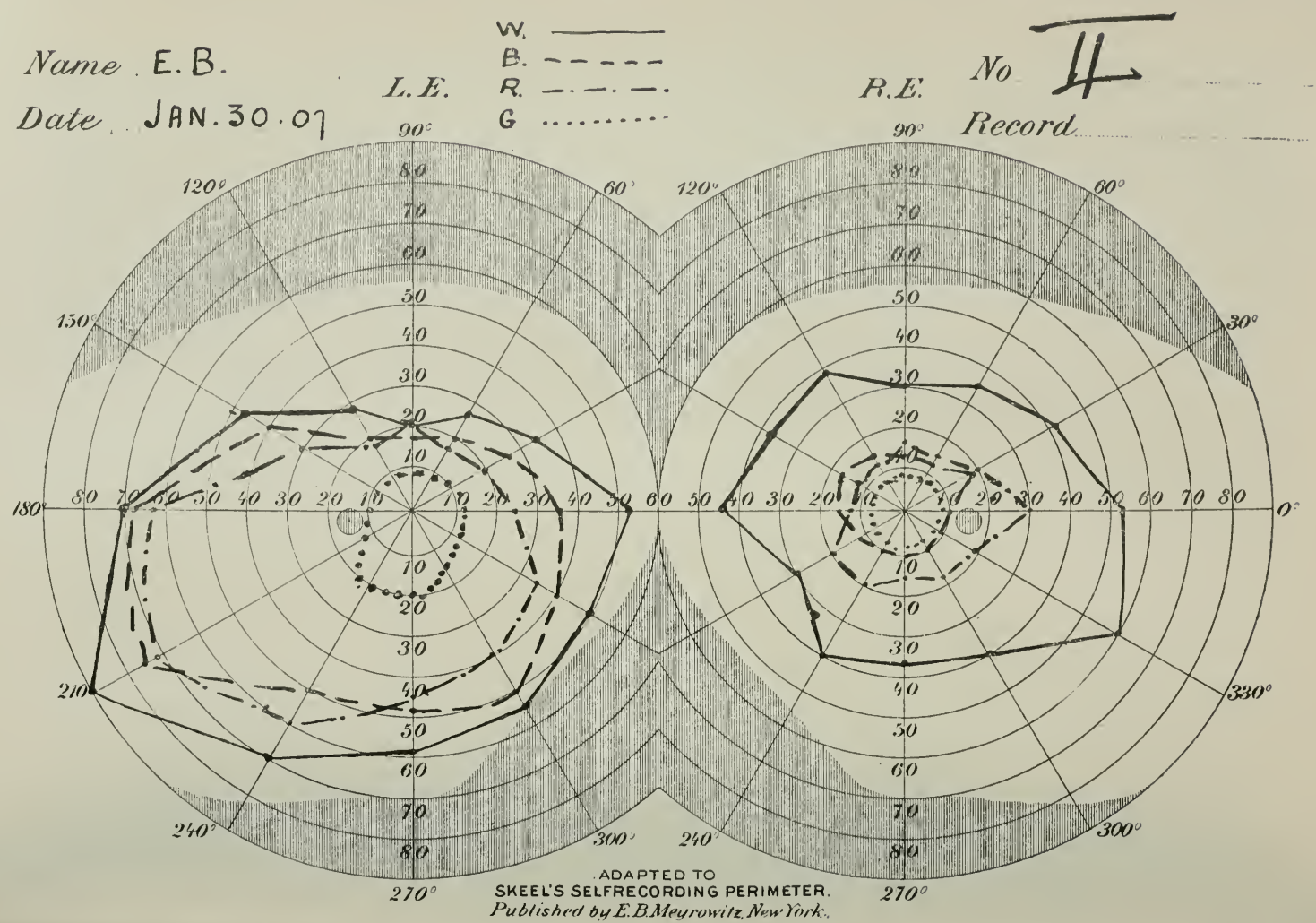
The following day the patient was anæsthetized. Under the influence of the ether the scoliosis gradually disappeared till the spine assumed a perfectly normal state. The tilting of the pelvis disappeared. The contour of the hips became symmetrical and the fulness in the right groin vanished. The spine was easily flexed in all directions. The rigidity of the right hip was gone and full extension and abduction was easily obtained.

The final examination practically excluded any tubercular condition of the spine or the hip, and enabled us to diagnose the condition as one of hysterical contraction of the spinal muscles.

The ætiological factors in this case were the definite history of two falls in which the back was injured. The first accident was eight years ago; the second two years later. In neither of them was the injury of a serious nature, yet they were so distinctly remembered that they must have made a decided mental impression and so helped in determining the localization of the hysterical manifestation.

The final cause that brought this condition to a focus was doubtless the worry and strain she went through both previous to and following her illegal operation.

The prognosis depends on the line of treatment that can be carried out. The treatment should consist of complete isolation. This is of the greatest importance. Friends and sympathetic strangers should be excluded. A strong-minded nurse should be in charge who will make light of her various pains and worries and constantly encourage her. There should be daily treatment care being taken not to fatigue the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patient, as the object is to strengthen the weakened muscles. This treatment may take the form of electrical stimulation, preferably the painful faradic stimulation by means of the wire brush. Mechanical vibration and massage is of great service for their general tonic effect. Passive exercises are also very important as they tend to overcome the spasms and strengthen the weakened muscles.

In this case isolation was impossible. Every day she received regular treatment and this varied according to her condition. Sometimes she received Faradic stimulation to the spinal muscles and vibration to the back, hips, and limbs. Another day she would be given vibro-massage and be put through some passive exercises. After one week of treatment very satisfactory results were obtained, as demonstrated by the fact that she was able to lie flat on her back on a hard table. The scoliosis almost completely disappeared: the hips became symmetrical, and the pain was greatly lessened. But, unfortunately, sometimes during the night, sometimes within the next hour, the old condition would return again. On February 20th, 1907, she left the hospital. Her bodily health was good, but the scoliosis and the hip condition were still evident.

PNEUMOCOCCUS CONJUNCTIVITIS.

BY

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Of the many and varied forms of an acute conjunctivitis referable to a specific micro-organism, none perhaps is more prevalent than that produced by the pneumococcus. This statement may be asserted with additional emphasis when one considers the outbreak, not only of isolated cases but of frequent epidemics during the early spring: the very unfavourable climatic conditions frequently induce colds of various kinds which play such an important role as a coincident factor in an outbreak of conjunctivitis of this kind.

The earliest recognition of the specfic form of conjunctival inflammation attributable to the organism under discussion is credited to Gasparrini, who noted the pneumococci in a case of hypopion keratitis in 1893. Gasparrini was subsequently able to produce a pneumococcus conjunctivitis in rabbits by inoculation. In 1894, one year after Gasparrini's observations, Morax and Parinaud described a particular form of conjunctivitis in the new-born as a monolateral, benign, but occasionally stubborn affection, with marked lacrymation and contemporaneous rhinitis. Lacrymal stenosis was frequently present at the

same time. In Parinaud's opinion the exciting factor proceeded either from the nose or from the vagina.

Morax noticed a very delicate false membrane in his earliest cases in children under two years of age, but lacrymation did not as a rule occur. He further noticed that the disease would disappear in the course of a few days, and, as frequently only one eye was affected, he regarded the disease as non-contagious.

In 1896 Gasparrini and Axenfeld remarked independently that the disease could be recognised at different periods of life and that nearly always both eyes were affected; the latter reported two distinct epidemics. Gasparrini stated as his opinion that pneumococcus conjunctivitis was contagious, but Axenfeld considered that this statement could hardly hold for every individual. They both agreed that the clinical picture varied, the former stating that some manifestations were practically indistinguishable from that form of conjunctivitis produced by the Koch-Weeks bacillus; the latter recorded that in many instances pneumococcus conjunctivitis was peculiar and distinct. Additional emphasis was given to the observations of these authorities by the experimental work of Pichler, Gifford and Veasy.

The presence of the disease has been recognised and recorded principally in the more northern countries and outbreaks of epidemics occur generally in the colder seasons of the year, principally in the early spring. It has been further observed that different localities and different seasons of the year produce different results and Gasparrini and Gifford seem to have noted much more intense outbreaks than other writers. It is not necessary to draw attention to the fact that pneumococcus conjunctivitis only occurs occasionally in pneumonia; in fact, very few isolated cases of a coincidence of the two diseases have been recorded. A severe cold in the head producing a temporary stagnation at the nasal duct may be a prodromal factor and responsible for the subsquent regurgitation of micro-organisms from the lachrymal channels. It has also been pointed out that this form of disease may occur with measles.

The disease is essentially an acute inflammation, one eye being rapidly affected after the other, in the form of a very acute catarrh; yet the intensity and duration of the attack may vary considerably. Some cases are very pronounced, almost bordering upon a type of blenorrhœa, showing marked injection and swelling with considerable purulent discharge; while others demonstrate quite a mild type of disease which is limited to a course of few days duration. Consequently, one cannot say that it is recognisable by a definite and distinct clinical picture.

Two cases seen by me comparatively recently manifest not only a diversity in the clinical manifestations of the disease but in the severity of the type of inflammation present.

Case A.—An elderly man had been admitted to the hospital for the extraction of a cataract. Extrinsically the eye appeared healthy in every respect but to insure additional safety a culture plate, as well as a smear preparation, was made from the conjunctiva; no bacteria were found. As an additional safe-guard the lachrymal sac was syringed out with saline solution and the duct found to be patent. The usual operation for cataract extraction was performed and for the first twenty-four hours the patient's condition was in every way satisfactory. The following day, after complaining of a burning sensation and pain in the eye, pus was found on the dressing and the conjunctiva was seen to be distinctly reddened; evidence of early necrosis appeared along the line of the corneal incision. A smear preparation of the conjunctival secretion was made after Gram's procedure, which revealed quantities of pneumococci. Römer's anti-pneumococcic serum was administered immediately but the day following the progress of the disease had not been stayed and pus was in the anterior chamber. Local treatment and the employment of Römer's serum failed to check the disease, so that in four days the condition had proceeded to one of panophthalmitis with the usual results.

Case B.—Admitted to hospital suffering from an acute keratoiritis of the right eye. The patient's general health was good but shortly after her admission she complained of pain and lachrymation in the formerly healthy eye. The onset was markedly acute, to such a degree that, in twenty-fours hours the lids were tremendously infiltrated and the most pronounced chemosis conjunctivæ was present so that the cornea could scarcely be seen. A rather profuse muco-purulent discharge was emitted from the palpebral fissure and examination of it showed pneumococci in large quantities. Iced applications of boracic acid and biborate of soda were applied to the lids and three or four days later all evidence of superficial inflammation had disappeared.

These two cases are cited merely to illustrate the remarkable result which may follow an apparently benign infection of the pneumococcus with a coincident corneal wound; while a very acute attack with profound superficial disturbance may completely disappear in the course of a few days if the corneal epithelium has remained intact.

An ordinary case of moderate intensity would appear somewhat as follows:—One first notices a rosy-red œdema of the lid margins, particularly of the upper, and Morax regards this as characteristic; there is

a rapid increase of the redness of the conjunctiva with moderate swelling and an occasional superficial false membrane formation so that at the crisis of the disease a profuse watery secretion containing a few purulent particles may be emitted between the lids and a marked redness of the bulbar conjunctiva be present, with an occasional phlyctænular formation at the limbus. One may occasionally notice tiny hæmorrhages in the bulbar conjunctiva particularly in that portion covered by the upper lid; these hæmorrhages assume a yellowish red colour and disappear during the process of resolution of the disease. This picture may pursue a critical course and the rapid disappearance of symptoms may follow in a short time after the crisis when the exciting cocci will disappear rapidly; the so-called Xerosis bacillus and the staphylococcus alone remaining. This condition is frequently noted in the new-born.

While a very similar picture of acute inflammation may be produced by the Koch-Weeks bacillus yet the critical course of the disease with sudden resolution and the arrest of symptoms independent of steady treament of the conjunctiva characterises the pneumococcus as the responsible exciting agent. The very frequent association of a distinct coryza is not characteristic in a Koch-Weeks bacillus infection to the same extent. If we are to accept typical cases of the disease, these appear to run more in epidemics than as isolated cases.

Instances have been remarked where children have seemed to be selected in an outbreak of the disease although adults exposed to precisely the same degree of contamination have escaped, These outbreaks, so frequently observed in epidemic form among children, do not appear to have been noticed among adults unlike the Koch-Weeks inflammation, only isolated cases appearing as a general rule. An outbreak in adults, if we are to regard it as such, is generally of a very mild nature compared to that seen in children and can hardly be considered as an epidemic contrasted with the epidemics of Koch-Weeks conjunctivitis. It is consequently quite possible that in a large proportion of adults the conjunctiva possesses a certain power of resistance to the pneumococcus not found in chilren.

I have already remarked that a light superficial false membrane may be formed on the palpebral conjunctiva; some types occasionally are more severe and may simulate the croupous or diphtheritic forms. An iritis may be produced by resorption of the toxines of the pneumococcus without there being of necessity a corneal involvement. Gasparrini, whose cases appear to have been particularly severe, as well as Rymowitsch, has remarked upon this fact. This iritis may remain after all the indications of the conjunctivitis have subsided.

Although an infection of the cornea by the pneumococcus as an ulcus serpens will follow an insignificant abrasion of its protecting epithelium this complication fortunately seldom occurs where the corneal epithelium remains intact. In support of this statement Coppez has shown that in the intact cornea colonization of the bacteria in this tissue seldom occurs. The marked importance of the pneumococcus infection of the conjunctiva in the new-born has been commented upon by several authorities. The concensus of opinion points to the fact that this form of inflammation is of a benign nature, more so at least than that produced by the gonococcus. Cases of blenorrhœa neonatorum due to the pneumococcus are comparatively rarely seen. The existence of follicles in pneumococcus conjunctivitis is very occasionally noticed and when found in any quantity they can generally be attributed to causes other than the pneumococcus. Gasparrini and Ferri report cases where conditions of trachoma have been improved after a subsequent infection by the pneumococcus; but Gifford and Junius have not been able to substantiate this optimistic view.

Inoculation of the disease into animals very seldom produces positive results and a reaction in rabbits has only occurred after scarification of the conjunctiva or after abrasion of the corneal epithelium. The results in man, however, as I have already stated, are very variable; the occurrence of epidemics with the demonstration of the pathogenic cocci is the best proof that the disease is one that is transmitted. Veasey and Gifford have produced the disease by installing a pure culture of the pneumococcus into the conjunctival sac. Gifford had no success at first with ærobic growths but with anærobic forms, conjunctivitis with flecks of secretion was present after an incubation of 24 hours. Halle observed the onset of the attack of conjunctivitis seven days after some discharge containing pneumococci had accidently found its way into the eye; on the other hand Axenfeld reports a series of eight cases, one a child, with negative findings. From the foregoing is deduced the fact that in addition to contact infection there is a distinct individual susceptibility; one must also consider the possibility that some secretions do not possess the same power of producing as others. From this inference we can thus account for many isolated or sporadic cases where, in spite of conditions of profuse discharge, contagion does not occur. The fact that adults remain uninfected in many epidemics endorses this conclusion. That many foster the pneumococcus in a normal conjunctiva and tear sac where little or no reaction is present is admitted; and inflammation of the conjunctiva due to an increased

virulence of this micro-organism or the diminution of the patient's powers of resistance, can readily account for the subsequent outbreak. The ordinary chill on taking cold is frequently the cause to which is to be attributed such formation of inflammation.

To what degree immunity to the pneumococcus can be produced in the conjunctiva, has not been as yet satisfactorily estimated. Gifford after inoculating himself successfully found the conjunctiva apparently immune one week later.

During the early stages and height of the attack pneumococci are generally found in large quantities, particularly in small particles of pus from the discharge; the bacteria may appear free or they may be intracellular. They vary from those exhaled from the lungs in that the capsule of the conjunctival form is less distinct. When many round, short diplococci appear one is generally able to recognise numbers of a larger form as well; staining after Gram's procedure differentiates them from other diplococci. As soon as the inflammation subsides the typical pneumococci disappear while the so-called Xerosis bacilli and staphylococci may remain in varying numbers. A mixed infection is not frequently the case and at the crisis of an attack a pure culture of pneumococci is generally found.

Examining, microscopically, a section of the conjunctiva affected by this form of inflammation, one finds a diffuse infiltration of leucocytes through the section while pneumococci can be detected in the epithelium and in the more superficial layers of the mucosa.

Culture growths show a characteristic form, and the disposition towards chain formation is apparent, sometimes confusing them with the streptococcus growth. A microscopical examination of a smear preparation usually solves the problem; the diplococcus is generally seen a pair of enclosed cocci some of which are of larger size than others. The typical shape, or that most frequently seen is somewhat pointed at the poles, or lanceolate, and this characteristic is particularly well seen in smear preparations. One may also observe shorter and rounder diplococci with isolated short, plump chains, as well as short bacillus-like growths and involution forms. The capsule misleads one in considering them to be as large as the staphylococci or the streptococci. This capsule is best seen in a preparation of Lœffler's aniline blue.

Pneumococci grow only in high temperatures, over 22°C., best at 35°C.; they become weak at 40°C. They require media which are mildly alkaline, yet different growths seem to vary in this respect. The media should be moist and not too old; on agar and blood serum one notices glassy, bright, opalescent colonies which are round, re-

sembling tiny droplets. They are very small and not very much elevated or sharply defined. After a few days' growth these colonies disappear or are indistinct. Some colonies of pneumococci growing on a very moist surface have to be examined with the aid of a magnifying glass in order to be detected. Römer had advocated rabbit's blood serum, to which one-third glycerin has been added, as the best culture medium upon which to grow the pneumococcus.

These bacteria from the conjunctiva seem to be more difficult to grow than those obtained from the sputum of pneumonia; the best media are carefully prepared blood serum and agar. The cultures generally die in the incubator in a few days; anærobic growths generally last a little longer and their power of virulence is also retained, as I have already stated in Gifford's conclusions. Bouillon growths produce a slight turbidity which quickly clears up. Growths from the conjunctiva on media die rather more quickly when placed on ice. Microscopical preparations made from media frequently show exaggerated forms of the bacteria as seen in smear preparations from the discharge; the arrangement of the cocci is often such as to simulate streptococci, the single organisms being shorter and rounder and arranged as short chains, these being included in the enveloping capsule. Such forms resemble the so-called "streptococcus mucosus" very closely.

The question of the identity of the micro-organisms last mentioned is, however, still an open one; some, as Wirtz, claiming it to be a distinct and separate form of bacterial growth, others, as Rupprecht, holding that its identity as such has not been proven and that in all probability it is merely a special form of the pneumococcus. In any case it is found extremely seldom as a distinct growth in the conjunctival secretion.

As the disease is a self-limited type of inflammation, the treatment must be essentially an expectant one; the secretion should be carefully irrigated from the conjunctiva and palpebral fisssures by bland alkaline solutions, as boracic acid and biborate of soda. Iced compresses to the lids are generally grateful to the patient and well borne by the eye. Any evidence of early ulceration of the cornea should be treated with the actual cautery.

The concensus of opinion points to the fact that Römer's anti-pneumococcic serum has little or no power in allaying the progress of the disease when once the pathogenic microbes have been demonstrated, and evidence of inflammatory reaction has appeared.

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AN AORTIC ANEURYSM IN THE LUNG.

BY

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This case report describes an aneurysm of the descending aorta, evidently due to syphilitic aortitis, which excavated a large part of the upper lobe of the left lung, forming therein a cavity of which the walls were formed to a great extent by the lung tissue. The history of the case, and its signs and symptoms will show the excuse that existed for the mistaken diagnosis of tuberculosis of the lung.

The patient was an Englishwoman, of 34 years, who had been married 8 years, and had lived 5 months in Canada, employed as a housemaid. There is no history of previous illnesses, save an indefinite history of abdominal inflammation two years ago, which does not appear to bear upon the condition here considered. No history of syphilis is obtained from her husband, although he was in the British army for 16 years, several of which were spent in India. She had had several miscar-

riages, and had borne one child who died shortly after birth. Its relationship in time to the miscarriages was not determined.

When voyaging to Canada, she was extremely sea-sick, and on landing was very pale and weak, but rapidly gained weight and strength. One month before admission she had pain and numbness in the arms, symmetrical and constant, and at this time began to spit small quantities of blood. Two weeks before admission, she had a hæmorrhage from the mouth of several ounces, but continued to work, and one or two hours later, had a second larger hæmorrhage, which caused her to faint. Two days later I saw her for the first time, and immediately after my entering the room, she had a hæmorrhage of 5 oz. of bright, frothy blood. She was given morphia and for ten days remained in absolute quiet, with no re-appearance of blood save that two or three times the sputum, which was very small in amount, was bloody. During this period of quietness, her pulse suddenly increased in frequency, up to about 150, at times 164, with some mental distress on the part of the patient, but without cyanosis or dyspnœa; the rapidity of pulse was noted for about 8 hours, and disappeared as it had come. Throughout this part of her illness, the patient was mentally restless, even though she was given much morphia, and frequently was apprehensive of death. After a period of two weeks, from the time of the first severe hæmorrhage, she was removed to the Royal Victoria Hospital.

As far as examination could be made, it was evident that the left upper part of the chest expanded relatively deficiently; both subclavicular hollows were deep and poorly expansile. Percussion, a few days later, gave a slightly dull note over the upper lobe, front and back, and was very painful. Tactile fremitus appeared normal. Auscultation after the first hæmorrhage gave inspiratory and expiratory crackles which appeared afterwards only at intervals. Over the left upper lobe behind at the apex the breath sounds were high-pitched, with an amphoric quality, and expiration was prolonged and blowing: lower down over the upper lobe in front, the sounds were slightly diminished, at times "cog-wheel." The voice sounds were increased, without pectoriloquy. No cardiac sounds were heard over this area, nor was any pulsation noticed, although the chest was repeatedly examined in a good light.

From the time of the first hæmorrhage, complaint was made of pain in the back of the neck, and the left shoulder, sometimes referred to the front of the chest on the left side, at the level of the second and third ribs. This persisted in spite of free use of morphia. After coming to the hospital, this pain was constant, and was generally

referred to the left shoulder, running to the interscapular space, but not into the arm. Tenderness of the left side of the thorax was constant and frequently noted. During the seventeen days she remained in hospital the sputum was several times bloody but no large hæmorrhage occurred. She improved in spirits, and was several times propped up in bed. On several occasions the patient complained of difficulty in swallowing, but as this was transient, it was not considered important, though in the light of subsequent knowledge, it may have been actually caused by the aneurysm.

The diagnosis of tuberculosis of the left upper lobe was made, and the sputum repeatedly examined for tubercle bacilli without result. Aneurysm was thought of, by reason of the constant pain, but save for the fact that the front incisor teeth were short and the left lateral incisor slightly peg-shaped, there was no additional sign of syphilis noted, which might favour the supposition.

On the evening of the seventeenth day, the patient was seen at 9 p.m. by the house-physician; she was in good spirits, but complained that the pain was very severe. She slept shortly after this, and was asleep when seen by the house physician at 1 a.m. At 1.30 a.m. she called the nurse, who ran hastily to her, and found blood running from the mouth: the house physician reached her bedside in less than two minutes from the moment of alarm, and found her dead, the external hæmorrhage not exceeding four ounces. The face was blanched, and a diagnosis of internal hæmorrhage was made.

The autopsy, performed 33 hours after death, showed that most of the blood in the body was in the left pleura, whence large clots, moulded to the ribs, could be lifted.

Two aneurysms were found on the left posterior quadrant of the aorta, at the arch just above the descending aorta; the upper of these projects out to the left and backwards, is 1.7 cm. diameter, and of the same depth; the left subclavian arises at its edge, almost one may say, from its cavity; in it no rupture has occurred. Immediately below it, is the larger aneurysm, which has led directly into the upper lobe of the left lung. This aneurysmal orifice has wrinkled, rounded edges, and is triangular in shape, of a maximum width of 3.5 cm. The sac has projected backwards and outwards, has become adherent to the posterior inner surface of the lung, and has then advanced into the organ; from this point the aneurysmal sac becomes the cavity in the lung; it has advanced forward, and upward, until it has left only a layer of lung tissue varying from one to two cm. thick on its outer side; the anterior lappet of the lobe is spared. The aneurysmal cavity in the lung is

subspherical, measuring in its greatest diameter 8.5 cm., in its least, 7 cm., and its wall is white and fibrous, but no where appearing thicker than 2 mm. Layer after layer of fibrin is deposited on the inner surface of this wall, until the cavity has actually but a small size. The outermost layers of fibrin are firm, but nowhere actually organised to the wall. At the lowest part of the cavity there is a tear in the fibrin layers, 4 cm. long, with sharp edeges, the underlying la yers are lifted, and fresh clot is found extending to a point just underneath the pleura, and along this track beside the clot the fluid blood has evidently made its way; the pleura has ruptured between the lobes, and here the escape of blood into the pleural cavity has occurred, a straight outlet from aorta to pleural cavity allowing the aorta in a few heart beats, to pour all the systemic blood into the thoracic cavity. The adjoining lung tissue is filled with blood and microscopically resembles an infarct. The aorta throughout presents the appearance of a syphilitic aortitis, although no other sign of syphilis, save as noted above in the teeth, is to be found. From the aortic valves to the mid-dorsal region the aorta shows proliferative change, with raised pearly plaques of chronic endarteritis, with an occasional superficial fatty area, but no calcification. The rest of the aorta is comparatively free from gross change.

There seems no doubt that the lung tissue has provided the wall of this aneurysmal sac, to a great extent: the rapid thinning of the arterial wall as one proceeds from the aorta to the lung cavity indicates a failure of the arterial structures, and an assumption of their function by the proliferated fibrous tissue of the lung. The condition must, therefore, be strictly classed as a false aneurysm, although there is no doubt that it began as a true one; it had impinged upon the 2nd and 3rd dorsal vertebræ, making a decided hollowing on their lateral surfaces, and as it advanced against the lung, the pleura and the lung tissue, giving way before it, had provided step by step, a barrier against it; the adhesion of the entire area involved, that is, the apex, posterior and internal surfaces of the upper lobe, was so dense that the lung was removed with the greatest difficulty.

The specimen has been placed in the museum of the Medical Faculty of McGill University, where there is already a specimen of a similar aneurysm of the lung which has become healed.

There are one or two points which remain obscure in the history of this case: there is little doubt of the existence of syphilis, judging from the state of the aorta; the occurrence of miscarriages and a child dying shortly after its birth, and the teeth as noted are suggestive of it: as to whether it was congenital or acquired, the likelihood is in favour of the

latter; in a doubtful case, the husband's military service in India is worth remembering, in consideration of the prevalence of syphilis in the army. There had been some previous ill-health, as the husband told me that before leaving England, the physician in the provinces who had treated the patient for the abdominal inflammation had sent her to a London physician of note, whose name the husband had forgotten; the physician had assured the patient that she had no disease of the lungs, and could safely emigrate to Canada: it is probable that at this time there had been thoracic pain or at least uneasiness, though I was not able to discover what symptoms had suggested the London consultation.

The pain and numbness in the arms, being bilateral, could not be due to pressure, though the subsequent pain in the left side of the chest probably was. The occasional difficulty of swallowing, and the attack of temporary tachycardia most likely had their origin through nervous influences.

THE WATER TREATMENT IN POST-OPERATIVE VOMITING.

BY

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Winnipeg, Man.

Ever since anesthesia came into general use, especially for surgical work, its after effects on the patient have been a matter of much concern and annoyance to the operator, and of grievous distress to the patient. Various methods in the pre-operative treatment of the patient have been employed in the past to prevent this condition, with little if any, success, so that now it is taken for granted that a patient, who takes an anesthetic, must suffer from nausea, vomiting and their allied distressing conditions for from twenty-four to seventy-two hours.

Any method of treatment which will obviate or prevent post operative vomiting will, I take it, be readily received by the profession and this is my reason for presenting to you this evening, a few facts regarding a simple method of treatment, which I have been using for the past year and a half and have found to be absolutely reliable.

About eighteen months ago, I read in the Medical Record, of New York, a discussion that took place at one of the Medical Society meetings of that city, in regard to this subject, at which, one of the surgeons present, (whose name I have forgotten), strongly advocated large libations of cold fresh water to be given to the patient for some hours before the operation. His theory as to the cause of vomiting from the

* Read before the Winnipeg Medico-Chirurgical Society, May 3rd, 1907.

anæsthetic is as follows: patient is prepared for the operation in the usual way and receives nothing in the shape of food or fluids for twelve hours previous to the operation, consequently the stomach is empty. During the operation the saliva becomes surcharged with the anesthetic and trickles down the œsophagus into the stomach, where in its concentrated form, it attacks the mucous membrane and produces gastritis. When the stomach is full of water the anesthetized mucus swallowed is quickly taken up, diluted and thus prevented from acting as an irritant to the mucus membrane. He reported three cases treated in this way with absolute success. So rational did this theory appear to be to me, that I adopted it at once and now have to report action on thirty-five patients. Length of time under the anesthetic ranged from forty-five minutes to two hours. There was one hysterectomy, six appendectomies, several cases of tuberculous glands of the neck, one large left inguinal abscess, a number of curettages, and various other minor operations. Preparation of the patient for morning operation; bath: saline purge in the afternoon of the day previous to the operation: light supper; after midnight give four ounces of cold fresh water every 4 hours. Two hours before the operation give eight to twelve ounces of cold fresh water and half an hour before placing the patient on the table, another eight ounces. In this way you will fill up with fluid the tissues that have been depleted by the purging, as well as put the stomach to its full capacity.

I have found when this plan has been carried out, that the patient is more easily put under the influence of the anesthetic; that there was not the slightest attempt at retching or vomiting by the patient when going under the anesthetic, or during the operation in the cases reported, with the exception of one. In this case the stomach was overcharged with fluid and immediately before beginning the operation, she emitted a mouthful of water, after which there was no more disturbance. Out of the thirty-five cases only four were troubled with slight post-operative vomiting.

In the hysterectomy case, which occupied two hours, there was slight vomiting of mucus at intervals of three or four hours, but there was no straining or retching associated, and the patient was able to retain fluids in the meantime.

In another case, appendectomy, there occurred a severe vomiting spell once only, six hours after the operation. The vomitus was dark grumous-looking, at which the nurse became alarmed and asked the patient what she had been eating. The patient replied that she

was starving and ate half a pound of chocolates, which she had smuggled into her room, with the inevitable result.

Number three was a case of tuberculous glands of the neck. In this case the nurse misunderstood the direstions and cut off the water supply at 2.30 in the morning. The operation was posted for 11 a.m. but owing to a previous operator taking up the time, it was postponed until 2.30 p.m. Just before the anesthetic was given I inquired of the nurse if the patient had received the usual quantity of water. She replied "none since 2.30 a.m." This patient was without food of any kind from 6 o'clock the evening previous, and twelve hours without fluids. I gave her a large tumbler full of fresh cold water, after which the anesthetic was given. At three o'clock in the morning she had a short vomiting spell and went to sleep immediately afterward.

This method has several important advantages. I found the blood pressure scarcely lowered in chloroform anesthesia; there was no tendency towards collapse in any of the cases and at the end of the operation the pulse was usually full, strong and regular. There was an entire absence of the severe straining and retching, so common in these cases; and this is of great advantage especially in abdominal operations, where there is a likelihood of the sutures stretching or breaking, and the edges of the wound separating, which, I believe, to be one of the most frequent causes of hernia in this class of operations. The return of the patient to consciousness an hour after being placed in bed and the desire for and retention of, liquid food within six hours after the operation and the elimination of the odor of the anesthetic from the body of the patient within twenty-four hours, as a rule, are factors which plead eloquently for the water treatment in operative cases.

From the forgoing remarks the following conclusions may be deduced; 1. That the free administration of water previous to the anesthetic is of great service to the patient. 2. That the intense thirst and retching usually experienced by patients happily are not present under this method. 3. That the odor of the anesthetic is much more quickly eliminated from the system. 4. That the patient is able to take food within six to eight hours after the operation and enjoy it.

Dr. Donald Armour, F.R.C.S. (Eng.), has been awarded the Jacksonian Prize for 1906 for a paper on "The Diagnosis and Treatment of those Diseases and Morbid Growths of the Vertebral Column, Spinal Cord and Canal which are amenable to Surgical Operation." Dr. Armour was a graduate of Toronto University in 1894.

PUERPERAL INFECTION.—CERTAIN CLINICAL CONSIDERATIONS.

BY

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Montreal.

During the past year patients confined in the Maternity have been comparatively free from infection, while, on the other hand, the gynæcological wards of the General and Royal Victoria hospitals have always contained infected puerperal patients, in most of whom the infection had resulted in abscess formation or true septicæmia. These women are generally seen late in the course of the disease, and, oddly enough, the bacteria present differ markedly from those usually found in the early cases. That is to say, staphylococci and colon bacilli are often found in the abscesses, though neither of these varieties of organism are of great importance in the consideration of early infection. Indeed, it is this bacteriological basis of the question to which I wish to draw particular attention to-night, under the three headings, prophylaxis, diagnosis, and treatment.

I have purposely avoided extensive excursions into the literature of the subject, and bring before the Society that which is entirely our own and that which we have tried and found of value.

Prophylaxis should begin, not at the time of labour, but early in the pregnancy. There is no doubt that a woman's susceptibility to infection varies greatly with her general health, and that a patient who has kept her skin active by daily baths during the last few weeks of her pregnancy, and who has not suffered from mild toxæmia from constipation, is much less liable to become infected than another who has not taken precautions. Much can be done for patients with profuse vaginal discharge. Irritating leucorrhœas improve greatly under douching with boric acid or normal salt solution, and profuse gonorrhœal discharge offers little more difficulty in treatment, than at any other time. During the past year we have had four or five gonorrhœal infections and have had considerable success with them. Rest in bed, douches with mild antiseptic solutions until there was marked decrease in the amount of discharge, and then in two, the use under primary anæsthesia of saturated solutions of permanganate and oxalic followed by glycerine tampons. In the others a strong solution of silver nitrate was used in place of the permanganate and oxalic.

* Read before the Medico-Chirurgical Society, Montreal, May 17th, 1907

The care of breasts and nipples is important. Depressed nipples should be drawn out with the fingers, a procedure which will tend at the same time to toughen the skin. Cupping, applying a hot bottle over the nipple and surrounding it with a cloth rung out of cold water, has also given good results. Where the nipples are not flat but show susceptibility to fissures, some emollient is used until the skin of the nipple is soft and not tender, and afterwards a wash of equal parts of alcohol and witch hazel is used twice daily. This solution does not appear to harden the skin but renders it tougher and less liable to crack.

At the time of labour the routine prescribed is to give the patient a full bath and enema, to shave the vulva, and to scrub with green soap and sterile water followed by alcohol, then to apply a towel soaked in 1-2000 bichloride solution. The question of danger of infection from the bath water has, I believe, been definitely settled, while the use of the enema is of the greatest possible value in the prevention of contamination from the rectum during delivery. The great possibility of fecal contamination, particularly during operative manœuvres, has suggested the use of a protective dam which I show you. It is a small piece of surgical rubber tissue, which, when moistened with chloroform, becomes adhesive and can be applied over the perineum and buttocks in such a way as to absolutely preclude the possibility of contamination from fæces. This simple appliance has proved an immense success in operations such as version, where the entire hand has to be introduced into the vagina, and where there is so much danger of the contamination of the fingers. With reference to the shaving, it was said that there would be considerable opposition from the patients on this score, but I have never yet met with any objections when the reason for the procedure was explained, and, on the other hand, most firmly believe that the proceeding itself has been a most effectual aid in keeping down the number of cases of infection. In those infected cases which have been sent into the hospital showing pubic hair matted with blood and lochia it is difficult to absolve the attending accoucheur from some responsibility for the infection. For this part of the preparation of the patient we have recently made use of a small safety razor, which, in the hands of the most inexperienced nurse, can do no harm to the patient and is much more easily used than ordinary scissors. The use of vaginal douches before delivery has been entirely discontinued. There is no time here to enter into the discussion of the bacteriology of the vaginal secretion. The most recent work, having in view all the discordant statements on the point in question, is that of Gonnet

of Lyons (*l'Obstétrique*, January, 1907), who gives results of examinations of secretion from a hundred patients, which further substantiates the contention that streptococci are never normally present in the vagina. It is not contended that the vagina is free from bacteria, but that the streptococcus pyogenes, by far the most frequent cause of infection, is *not* present, while those organisms which *are* present can only have importance in connection with the retention of blood clot, membranes or portions of placenta which give them a field for growth.

Experience in abdominal palpation and a knowledge of the descent of the head or breech into the pelvis, as gained by palpation above the pubes or by invagination of the perineum, has to a great extent lessened the necessity for repeated vaginal examinations; indeed, apart from a knowledge of the degree of dilatation of the cervix there is little to be gained from vaginal examination that can not be as readily and more safely obtained by other means. It is a well known axiom that the danger of infection varies practically with the number of vaginal examinations during labour, and indeed, it is doubtful whether two such examinations should not be the limit in any given case. The introduction of rubber gloves for use in vaginal examinations has suggested the possibility of their use in determining the dilatation of the cervix by palpating through the rectum. This procedure which was, I believe, originally suggested by Kronig, was one fraught with extreme danger when absolute asepsis could not be obtained later in the delivery. The use of a thin glove, which should be kept solely for this purpose, and boiled before and after using, will, with a certain amount of experience, enable one in many cases to omit vaginal examinations.

After such stress on the careful conduct of vaginal examination, it may be suggested that I have overlooked the possibility of infection in cases not examined vaginally. Such infections undoubtedly occur, and may possibly be due to streptococci. In this case, the chart of which I show a pure culture of streptococci was obtained from a sample of lochia taken at the time of the rise in temperature. The patient had not been examined in any way and I was at a loss to account for her condition until, on careful inquiry, I found that the labour, which had taken place two or three weeks prematurely, had come on within twenty-four hours of sexual intercourse. This possibility, to which reference has been made by Dr. Williams, must be always borne in mind, and, I believe, will explain many so-called cases of auto-infection.

Apart from the question of vaginal examination, there are certain features in the management of labour itself which are worthy of attention. First of order, I would place careful management of the third

stage of labour, not only with reference to the question of hæmorrhage, but also that care may be taken to secure the membranes entire. There has been considerable discussion in Germany recently as to the proper procedure where portions of membranes are retained, and, while I think most of us here will agree with the majority of those who have written on the subject, that the retention of membranes is of itself a matter of slight moment, yet it is hard to believe that the presence of portions of the chorion hanging like a wick from the cervix, will not favour the ascent of organisms from the vagina with consequent toxæmic infection. Much of the success claimed for Zweifel's procedure, namely, sponging out clot, etc., from the vagina is probably due to the prevention of such ascending infection. It is interesting, however, to note that even in these cases of so-called sapræmia the organisms found are not only those from the vagina but also others undoubtedly from without.

Next to this care for the membranes, I would place the importance of catheterization of the patients, either immediately before or immediately after the completion of the third stage. However carefully conducted the labour, there is almost invariably a certain amount of laceration about the vestibule. Abrasions slight in themselves, frequently give rise to retention; and yet if left alone heal within a very short time. Catheterization cannot be carried out later without opening up of these fissures and the irritation is apt to cause retention. Moreover, this emptying of the bladder which allows a ball valve like action of the upper segment is of the greatest value in the control of hæmorrhage. Profuse hæmorrhage may often be checked by this simple procedure which allows the uterus to take its normal position.

Good involution thus initiated immediately after the birth of the placenta is of the utmost importance during the puerperium, and too much stress cannot be laid on the position and consistence of the fundus. A lax uterus which allows accumulation of blood in its cavity or does not properly rid itself of the lochia is much more susceptible to infection than is one in which proper involution has been secured. The application of ice over the fundus, the repeated administration of small doses of ergot, the regular evacuation of bladder and rectum and late in the puerperium the use of hot vaginal douches give most satisfactory results. The condition of the cervix has also much to do with involution and susceptibility to infection; but while, for my own part, I am a strong believer in the immediate suturing of such lacerations of the cervix as extend half way or more into the vaginal fornices, this is a question of such moment that it cannot be dismissed with a word.

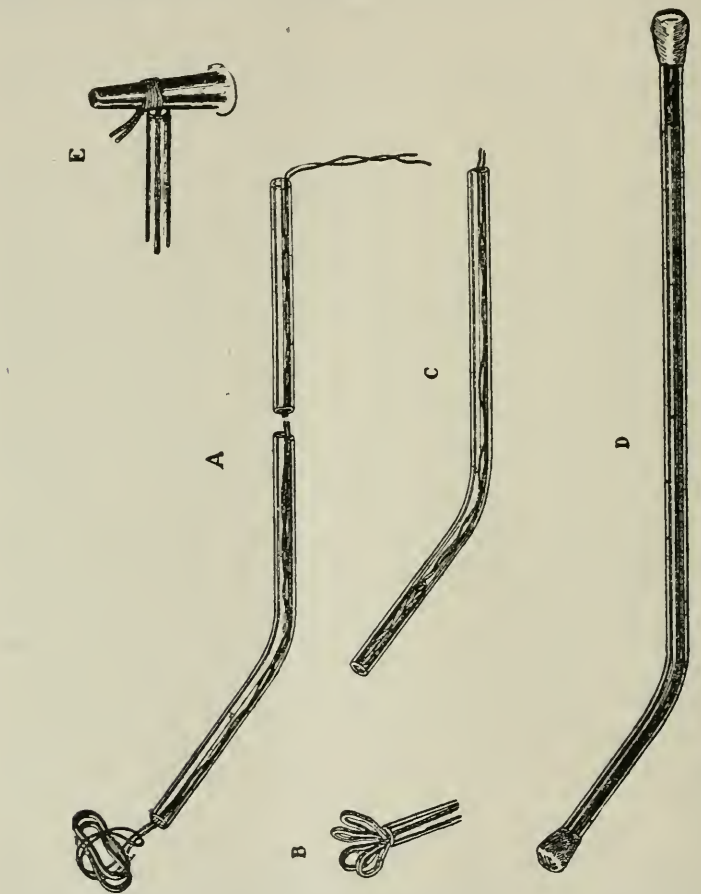
In considering diagnosis, the first difficulty is to decide what really constitutes puerperal infection, and for the purpose of classification

the majority of German clinicians are agreed that any patient whose chart shows a rise in temperature to 38° C. (rectal measurement) should be classed as morbid. In the annual report of the Maternity many variations of this classification have been considered, and on the whole it is probable that any rise in temperature to 100.5 degrees F. should be viewed with apprehension, and a rise to 102 degrees call for most careful examination of the patient. There can be no doubt that the temperature may be elevated during the early days of the puerperium from causes other than infection of the endometrium, but in the absence of evidence to the contrary, that is the first probability.

The infecting agents may be roughly divided into four classes: (1) Streptococci, alone or in combination. (2) Gonococci. (3) Aerobic organisms which do not usually develop save in the presence of necrotic material, so-called "saprophytes," and (4) Anærobic organisms. Combination of the first two and last two groups will give us the division made by McDonald into so-called (1) true infections or septicæmia, and (2) toxæmia. It will be noticed that no special mention has been made of the staphylococcus or the bacillus coli. Staphylococcus infection immediately post partum is extremely rare. In 150 cases of infection reported upon by Dr. Williams, the staphylococcus was found but four times; and in a long series of cases fully equalling that number, I remember isolating it in but a single case. The fact that the staphylococcus is so frequently found later in cases that have undergone treatment, suggests that it may have been introduced during the so-called remedial manipulations. The bacillus coli is rarely present except in cases of fecal contamination, where streptococci are also undoubtedly introduced, and, elsewhere I have reported one case with an old complete laceration of the perineum in which a practically pure culture of the bacillus coli was obtained from the uterine cavity, and yet the patient showed no signs of systemic disturbance.

For the classification of infections according to etiology there is no definite clinical basis. It has been said that the signs of toxic infection appear late and that in gonorrhœal infections there is usually history of previous vaginitis. In none of our cases of gonorrhœal infection was there a history of previous vaginitis, but on the other hand, those cases of gonorrhœa were successfully treated during pregnancy, and none of the four showed later evidence of infection. Anærobic infection is most frequently met with in cases of incomplete abortion where the retention of large quantities of dead tissue is complicated by inefficient drainage from the cervix.

Apart from the clinical value of a differential diagnosis and the placing of individual cases into one or other class, a positive bacteriological examination of the lochia may be of distinct medico-legal value. It is not at all uncommon for women about the time of confinement to consult scientific books from which they obtain an idea of the physician's responsibility for infection, and suits for malpractice are not



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unknown when infection occurred. The fact that without bacteriology it is impossible, for example, to say whether the streptococcus or the gonococcus has been the cause of the trouble, renders the making of cultures imperative; while in hospital practice where patients are admitted with fever, as in cases of incomplete or criminal abortion, a culture taken before any operative measures are begun may prove of distinct value in placing responsibility should complications occur later.

For the purpose of taking such cultures many means have been suggested, and the one I wish to bring to your attention is not altogether new. It was devised about three years ago when working in Dr. Williams' clinic, and since that time I have used it on some 300 occasions with increasing satisfaction as to its value. It is a glass tube curved slightly at one end to correspond to the shape of a uterine sound. Two small rubber bands are tied in the middle with a stout thread or narrow tape and are then drawn up into the tube so that they may act as a plunger and make each tube an aspirating syringe. No cervical secretion can enter the tube during its passage into the uterus, and if traction be made by reeling the draw-string upon a dressing forceps, using as fulcrum the distal end of the tube, there is no possibility of projecting the tube against or through the wall of the uterus, as might happen if the plunger was blocked and then suddenly freed. The tube is sterilized by boiling and can be used without aid from an assistant, while very little disturbance of the patient is necesssary. The manner of procedure is as follows:—The patient is prepared as for vaginal examination and then carefully raising her a shallow bed pan is placed under the hips, and, after covering the thighs and abdomen with sterile dressings, (1) catheterize, (2) expose the cervix by means of a bivalve speculum, (3) secure the anterior lip with a tenaculum, and (4) after sponging away any secretion present in the cervix, pass the tube directly into the uterine cavity. After the lochia have been secured a uterine douche can be given, the pan receiving the returning fluid. The operation lasts but a very few minutes and causes practically no disturbance of the patient.

The macroscopic appearance of lochia in the tube is of value in that all, particularly the gonorrhœal, have distinct characteristics. These last are, as first pointed out by Taussig, of greenish yellow mucous character, with occasional streaks of blood, very stringy and gelatinous. In streptococcic infections, the breaking down of the red cells gives a diffuse cherry red colour to the secretion; while in the anærobic cases the colour is frequently a dirty dark brown. The odour is of comparatively slight importance; in the most severe cases infected with streptococci there is no odour.

Even where media is not available for inoculation, much may be gained from an examination of cover-slip preparations. Particularly is this true in the case of gonorrhœal infection. In addition to the form of organism present, the number of leucocytes present and the question of phagocytosis is of as great importance, for those cases in which streptococci are present with evidence of extensive phagocytosis

on the part of the leucocytes have a much more favourable prognosis than when this is not seen. More complete and satisfactory results in diagnosis will be obtained by sealing the tube at either end and sending to a laboratory.

This bacteriological diagnosis has a direct bearing on the treatment. It is well known that streptococcus infection takes place in the absence of retention of debris within the uterus; putrid infections are practically impossible without the presence of such debris, while in gonorrhœal infection there will be a considerable amount of characteristic viscid secretion. Thus, the use of the curette in strpetococcus infections will probably be positively harmful, while in gonorrhœal infections it can do little good. Safer then will be the exploration of the cavity with the finger and the removal of debris if present. During the past year, I have seen six cases of retention of the placenta, in four of which, the *villi dipped deeply into the muscle wall of the uterus, and in all four there was a history of curettage for infection at the previous labour.*

It is well known that gonorrhœal infection treated expectantly almost invariably subsides. Hot vaginal irrigations with consequent increase in the local blood supply need be only therapy. If an intra uterine douche is used it should be either sterile water or normal salt solution. In a recent case of gonorrhœal infection I have seen a cast of the uterine cavity formed from albuminous secretion coagulated by a weak bichloride douche, the douche in this case frustrating its own end. In putrid infections, removal of debris with the finger will be followed by a marked improvement in the patient's condition and the use of ordinary normal salt solution as a douche at the time of taking the culture may of itself remove disorganized clot or other material, and a satisfactory result will follow, without even the use of the exploring finger. Anærobic infections are best combatted by the allowance of free drainage after opening up the cervix and thoroughly washing out the cavity.

But one class of cases gives rise to anxiety — streptococcus infection. Here, too, the fact that so many improve *in spite* of active treatment is the strongest argument for careful expectancy. Knowledge of the pathology of the condition has, as said before, shown the contra indication to the use of the curette and, indeed, it is doubtful if the use of intra uterine douches is of value. Strong antiseptic douches do not penetrate into the muscle and will probably do positive harm. The proper treatment seems to be to secure good involution of the uterus, to keep up the patient's general strength, and thoroughly

wash out the bowel and her system generally by the use of large quantities of water and normal salt solution. By the use of rectal salines, by sub-mammary salines, and by forcing the patient to drink, 10 to 12 litres of fluid can be given in twenty-four hours, and where this is done there can be no doubt of its therapeutic value. The rapid recovery with this treatment leads one to view with suspicion the brilliant results claimed from the use of silver salts and other similar remedies, while the varying characteristics of the organism found has hertofore rendered the use of anti-streptococcus serum of no practical value. Polyvalent sera have, indeed, been introduced and used with considerable success, but so far, there has been in America at least, no scientific basis for their production or use. It is our great hope that sometime in the near future it may be possible to so systematize our practise that we may be able to grow the specific organism from the uterus in each case, and from such cultures obtain vaccine which may be used in the manner suggested by Sir A. E. Wright.

All that has been said with reference to the treatment of infection in labour, at term will apply with still greater force to the treatment of incomplete abortion. The comparatively insecure attachment of the ovum to the decidua in the earlier stages of gestation renders its removal with the finger extremely easy, while the use of a sharp curette on the soft and thick decidua cannot but do harm both in giving a larger surface for absorption where infection has been present, but also in the removal of an excessive amount of uterine tissue. With reference to packing the cavity of the uterus in these cases, I believe experience has shown that great value should be attached to the allowance of free drainage without packing. The pack can do no good apart from preventing hæmorrhage, and, if the cavity has been completely cleansed, no bleeding will occur; on the other hand, even where iodoform packing has been used, I have taken cultures from above and behind the pack and found living and growing anærobic organisms.

On the whole, the simplest and best treatment for this class of cases would seem to be dilatation of the cervical canal till the introduction of a finger is possible, then the removal of debris with the finger, and, if necessary, the ovum forceps and subsequently a douche of salt solution. Frequently the use of a salt solution douche may give rise to rather alarming symptoms, a rapid rise in temperature, shaking chill, and evidence of collapse. This, I believe, is due to the sudden absorption of the fluid of the douche containing large amounts of soluble toxins from the necrotic material, this absorption being rendered more possible

by the removal of the debris. Lately, and on this account, we have ceased to douche cases of incomplete abortion, particularly where there is no evidence of severe infection and the results seem to be good.

Unusual stress has been laid on two features of treatment to which I would like again to refer; the use of the curette, and the question of douching. The curette has been seen to open up new avenues for infection and to be only relatively useful in removing debris. In a recent article by Gordon (*Jour. of Obstet. and Gyn. Br. Emp.*, Jan., 1907) the dangers of a blunt curette are set forth, and while the writer suggests the radical use of the sharp curette it is only as a last resort and in combination with strong measures to disinfect the cavity and prevent hæmorrhage. He lays great stress on the necessity for curetting down to the muscle wall of the uterus, and either loses sight of the fact which I have brought to your attention that such laying bare of the muscle wall of the uterus is invariably followed in the later pregnancy by that condition known as placenta acreta or placenta membranacea, which in itself gives rise to the necessity for manual removal and grave danger of further infection, or believes that in extreme conditions this is of no moment. Much has been written about the danger of the curette breaking down the normal attempt at repair, the leucocytic barrier within and beneath the infected decidua. In cases of streptococcic infection, the curette cannot even then reach the infecting agent which travels directly through the muscle wall. With regard to douching, note that the prophylactic douche before vaginal examination has been absolutely discontinued, and apart from those douches given late in the puerperium where there is evidence of subinvolution or retention of debris in the uterus, intra uterine douches have been also discontinued. After operative cases it is probable that rather free bleeding is of value as a mechanical douche and it is doubtful whether after an operation conducted without strict asepsis any douche would be given with better technique and if the danger from the douche would not outweigh its possible benefit. Weak solutions of the usual antiseptics in tap water are a source of the greatest danger. In the paper referred to by Gordon the author states that he has never seen a bichloride intra uterine douche given without subsequent evidence of poisoning, while Bumm has shown that the most energetic local treatment is useless, as within fifteen minutes to one-half hour the organisms have so penetrated the tissues that they are far beyond the reach of any chemical disinfectant. Resistant spores in tap water will not be be rendered innocuous by the association for a short time with such minute quantities of the antiseptic as can be used without danger of

poisoning. This danger of poisoning applies chiefly, of course, to solutions of bichloride of mercury and of carbolic acid which, however, are the two in most general use.

To conclude, I would lay stress on the following points:

(1) The prophylaxis of puerperal infection should begin during pregnancy, not at the time of labour.

(2) Vaginal examinations should be undertaken only with the strictest aseptic precautions and may be replaced by rectal examinations if gloves are worn.

(3) There are no definite clinical signs by which we may differentiate varieties of infection early in the puerperium.

(4) A bacteriological examination of the lochia is of great value in diagnosis, as a guide to treatment and also medico-legally.

(5) The use of the curette is *contradicated* in severe streptococcic infections, and in all cases is liable to do harm, both by interference with attempt at repair on the part of the tissue, and when carelessly used, by removing too much tissue and so permanently altering the character of the endometrium.

(6) Intra-uterine douches are not devoid of danger, and if used, should be of simple character and contain no strong antiseptic.

(7) In treatment, (*a*) clear out debris from within the uterine cavity; (*b*) *allow free drainage*; (*c*) keep up the paient's general health; (*d*) bear in mind that a mild infection may be aggravated by improper (usually too active) treatment in its early stages.

POLYPOIDAL OVERGROWTH OF THE INFERIOR TURBINATES.*

BY

E. HAMILTON WHITE, M.D.,

Clinical Assistant in Department of Nose, Throat and Ear, Royal Victoria Hospital, Montreal.

The specimens presented were removed from a man aged 63 years, in March, 1907. The history contained nothing beyond the complaint of nasal obstruction for about ten years, slightly worse within the past two months. There had been no marked nasal discharge or pain at any time to suggest a sinusitis or other severe inflammatory condition. Two years ago he was examined and told that he had a nasal polypus but refused treatment.

On examination, both nostrils were found to be filled with a pinkish mass of cauliflower appearance. By posterior rhinoscopy the masses could be seen protruding slightly into the naso-pharynx, where they

*Read before the Montreal Medico-Chirurgical Society, April 19th, 1907.

were in contact with the middle line. On the 11th of March the tissue was removed from the left nostril by means of a cold wire snare. The mass was engaged by a large loop and avulsed, in the manner usually employed in removing the ordinary œdematous mucous polypi: very little bleeding followed. The condition was found to arise from the inferior turbinate which had undergone a polypoidal degeneration

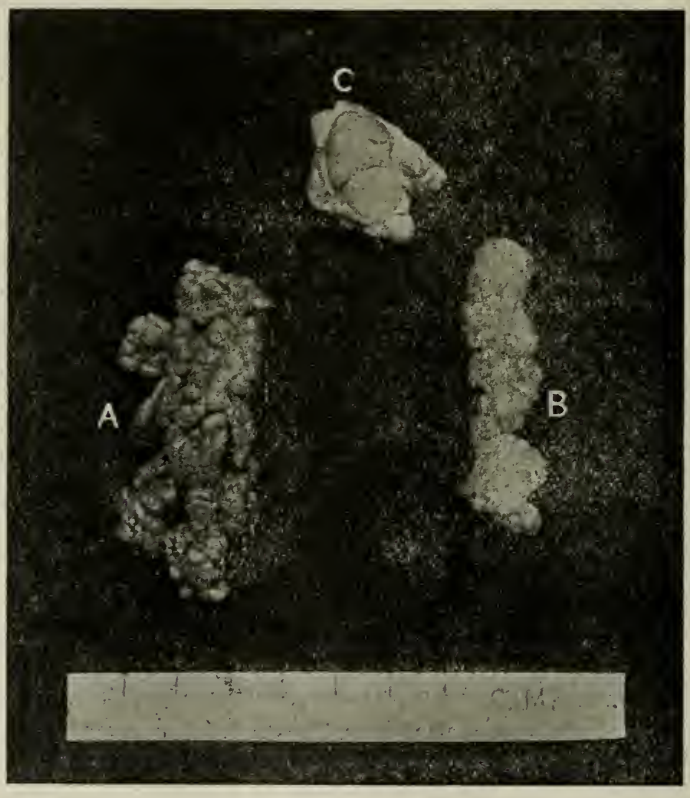

Plate I.—*A* and *B* show the polypoidal masses referred to in Case I, still showing the general form of the inferior turbinates. *C* shows the irregular lobulated shape of the tonsil reported in Case II.

throughout its entire length. The middle turbinate and ethmoidal region which are the usual site of polypoidal changes appeared healthy. A few remaining tags of unhealthy mucosa were snared individually. Owing to the extent of the operation the lower meatus was lightly packed with iodoform gauze for forty-eight hours.

One week later the right side was treated in the same way; the process here was the same, but had not advanced to the same degree. (See Plate No. I.)

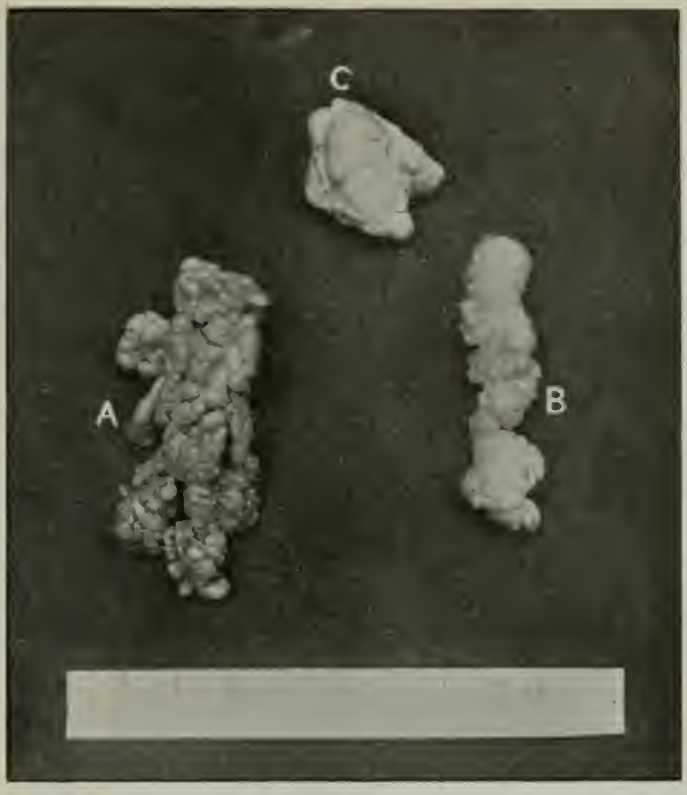

Plate I.—*A* and *B* show the polypoidal masses referred to in Case I, still showing the general form of the inferior turbinates. *C* shows the irregular lobulated shape of the tonsil reported in Case II.

Plate II.—Lateral view of largest mass showing the papillary overgrowths.

Plate III.—Micro photograph of section (very low power) of small portion of the polypoidal mass. The dark outline represents the thin covering mucosa of columnar epithelium which has taken no part in the overgrowth.

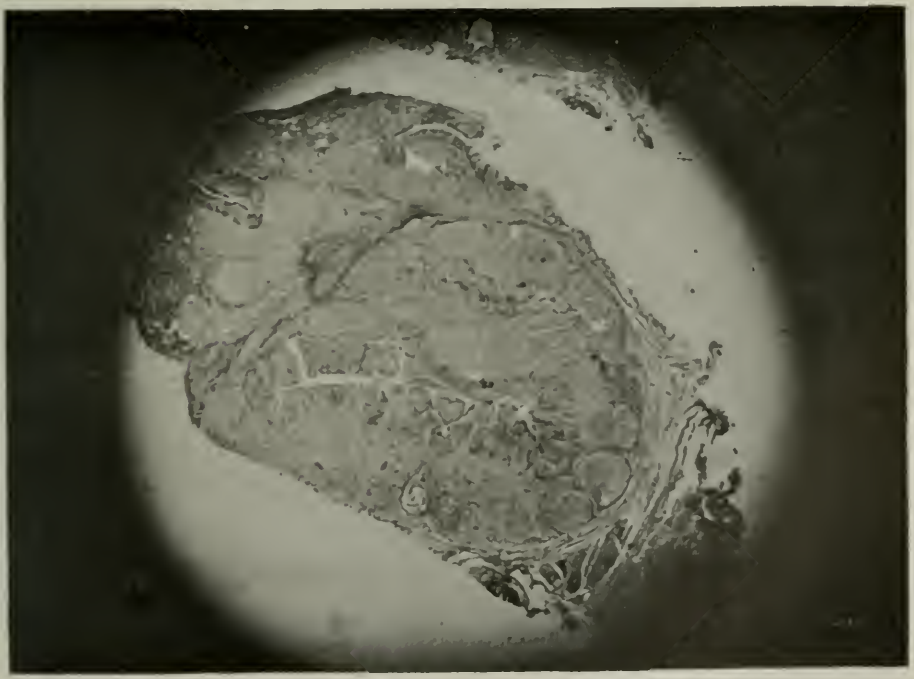

Plate IV.—Micro photograph of lobule of tonsil (case II) (very low power) shows central crypt with papillary overgrowth of mucosa lining it. The epithelial tissue can be distinguished from the lymphoid tissue by its deeper staining.

The condition represents merely an extreme development of a process frequently seen in a mild form in the posterior ends of the inferior turbinates, the so-called "mulberry turbinates."

Sections show only œdematous connectives tissue, covered with a thin mucosa of columnar type, containing a few degenerated mucous glands. The condition is to be distinguished clinically from ordinary polypoidal disease, though the histological changes are very similar. Wright* points out that owing to the papillary appearance of these growths they have sometimes been wrongly called "papillomata." In a papilloma the overgrowth is of the epithelial tissue which in these

Plate II.—Lateral view of largest mass showing the papillary overgrowths.

cases is thinned and degenerated, acting merely as a covering. (See Plate III.)

The largest mass (see Plate No. II) measured 4.5 x 3.5 x 2 cm. Accommodation for this large mass was made possible by a considerable deflection of the nasal septum to the opposite side.

Healing took place rapidly, and the nose now presents a fairly healthy appearance.

The etiology is the same as that of chronic hypertrophic catarrh, various conditions leading to irritation and congestion. The œdema, the papillary form and the large size of the mass are the unusual features of this case.

*Jonathan Wright, *New York Medical Journal*, 1897, Vol. II, p. 653.

Plate III.—Micro photograph of section (very low power) of small portion of the polypoidal mass. The dark outline represents the thin covering mucosa of columnar epithelium which has taken no part in the overgrowth.

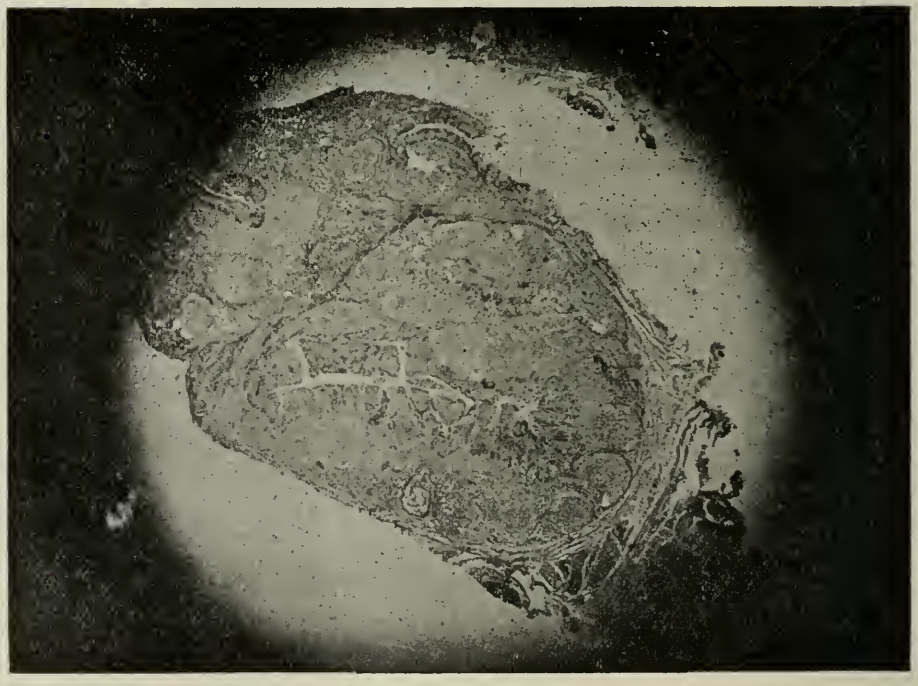

Plate IV.—Micro photograph of lobule of tonsil (case II) (very low power) shows entral crypt with papillary overgrowth of mucosa lining it. The epithelial tissue can be distinguished from the lymphoid tissue by its deeper staining.

AN UNUSUAL SPECIMEN OF TONSILLAR ENLARGEMENT.

BY

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This specimen occurred in the throat of a little girl aged three years who suffered from paroxysmal attacks of cough on lying down. The child was well nourished and her general appearance did not specially suggest great tonsillar enlargement.

Examination showed a very large irregular mass arising from the right tonsillar fossa and extending almost to the other side of the pharynx. A small depressed, greyish area at the upper part suggested ulceration; no tonsillar enlargement on the left side.

The mass, which was attached by a fine pedicle, was removed by Dr. Birkett with a cold wire snare with very little bleeding. A small adenoid was removed at the same time. The tonsil measured 3.5 x 3 x 2.5 cm. and weighed 6.5 grammes. Its shape was irregular and lobulated (see plate No. I. C.) and the crypts were few and inconspicuous on the surface. The greyish area referred to was rectangular, measuring 1 x .5 cm., slightly excavated in appearance. Sections showed masses of lymphoid tissue distributed around crypts the lining of which was proliferated and thrown into papillary folds and showed great lymphoid infiltration. See Plate No. IV. There was a rather large amount of fibrous tissue stroma. The greyish area showed no ulceration but a local thickening and papillary overgrowth of the surface epithelium. It would seem likely that the depressed appearance was due to the local overgrowth preventing this part from sharing in the general expansion of the tonsil. There was no evidence of malignancy in the overgrowth.

The unusual features of this specimen are, 1. The large size and irregular shape of the tonsil; 2. The unilateral and pedunculated nature of the mass; 3. The evidence of overgrowth of the crypt lining.

In closing I wish to acknowledge my indebtedness to Dr. Birkett for the oportunity of reporting these two conditions, both of which were from cases attending the Nose, Throat and Ear Department of the Royal Victoria Hospital.

The photographs were prepared by Mr. Wootton.

TUMOUR OF THE TEMPORO-SPHENOIDAL LOBE WITH DREAMY STATES.

BY

COLIN K. RUSSEL.
Associate in Neurology, Royal Victoria Hospital.

The case which I wish to show before the Society to-night is one of pressure on the temporo-sphenoidal lobe with dreamy states. It seems to me this case is of sufficient general interest to justify its exhibition before this Society.

Dr. Hughlings Jackson first called attention to these dreamy states in connection with lesions of the temporo-sphenoidal lobe in 1876, but comparatively few cases have found their way into the literature in the interval. Farquhar Buzzard reported one case (*Lancet*, June 30, 1906), which I had had the good fortune to have studied in the National Hospital, Queen Square, and of which I happen to have here a photograph showing the new growth involving the temporo-sphenoidal lobe and spreading into the region of the lenticular nucleus of the right side of the brain. Buvor in his recent Lettsomian lectures refers to other similar cases.

The present case is a girl, aged 17, French Canadian who came to the Neurological Out-Door, Royal Victoria Hospital, in February last.

Illness started about three years ago with what she terms attacks of vertigo. The first attack came on when she was dressing in the morning. It commenced with a feeling of dread, she trembled as if from cold and felt as if she were dying. She says she did not lose consciousness. During this attack she saw, as if in a dream, a woman apparently trying to save a child who was drowning. She could not see the woman's face. The attack lasted about five minutes. After this she had on an average about one attack a week all of the same nature, ushered in by this feeling of intense fear and in which she always saw the same vision. She could recognise the woman as the same one in each attack, although she was never able to distinguish her face. The attacks were not accompanied by any aura of smell or taste, the face became pale and the lips cyanosed. They lasted about 4 or 5 minutes, there was no involuntary micturition nor biting of the tongue and she says no loss of consciousness. Sometimes she slept after the attacks. Only occasionally did she have headache, which was always on the left side of the head and face and on one or two occasions was accompanied by vomiting.

* Read before the Montreal Medico-Chirurgical Society.

About 1½ years ago she had 18 attacks in 24 hours. About one year ago her eyesight began to get bad and in the course of 2 weeks she became blind. She never had diplopia.

Lately in the attacks she does not see any definite vision. She says she still dreams but now it is as if everything which had happened recently passed before the mind's eye, and later she does not know if these things have really happened or if they have been dreams. The attacks are in every other way similar to what they formerly were. The attacks have been much less frequent, but she complains rather more of severe headache, confined to the left side of the head and face and associated with a numb feeling, and she says she cannot taste so acutely on the left side as the right.

Otherwise she has been always healthy. No history of injury. In her family one brother has Potts' disease and there is tuberculosis on the maternal side of the family.

She is intelligent and cheerful; has no aphasia.

Post-neuritic optic atrophy with total bilateral blindness. R. pupil and L. both react on convergence, but not to light. The conjugate movements of the eyes were disturbed and irregular and associated with nystagmus, owing probably to the blindness.

Objectively, there is an area of diminution of sensibility over region of 5th nerve on left side of head (corneal and conjunctival reflexes absent on left side), with diminution of acuity of taste on left side.

Reflexes—Deep: knee-jerks hard to obtain. Abd. and epigastric relatively diminished on right side compared to left. Plantar flexion right and left.

From the history and the presence of post neuritic optic atrophy there seems to be no doubt of the presence of intracranial pressure, most probably a new growth: as to the location of the lesion—the dreamy states point to the temporo sphenoidal lobe, while the history of the pain in the region of the left fifth nerve and the diminution in sensibility over the region, as well as the relative diminution of the sense of taste on that side all make one suspect pressure on the gasserian ganglion. There is also, as is evidenced by the great diminution in the abdominal and epigastric reflexes on the opposite side some pressure on the pyramidal fibres above their discussation. So that it seems probable that the lesion is in the inferior temporal convolution just posterior to the uncinate gyrus. From the family history one would suspect a tubercle.

Why we should have these dreamy states in lesions of this part of the brain is difficult to explain. Buzzard's case, in which the patient describes her condition by saying that her "mind seemed to go to other

places"; "she saw a room with girls working in it, she had never seen the room nor the girls before."—the lesion was in the *right* temporo sphenoidal lobe, and later was associated with paresis of the left side of the body and loss of abdominal and epigastric reflexes on that side. This would apparently exclude irritation of Déjérines centre for visual memories in the left angular gyrus, if such a centre does exist, as taking any part in the production of these "dreamy states."

Possibly, as Dr. Hughlings Jackson suggested, we have in the temporo sphenoidal lobe the upper centres supplied by the cochlear branch of the eighth nerve conveying to us from the semicircular canals, etc., our perceptions of space.

Now, it is only when one suffers from paralysis of an ocular muscle that it is revealed to one that one sees double. Then the two hemispheres of the brain act independently, although normally they act in co-ordination. It is possible that we have here in lesions of the temporo sphenoidal lobes a condition comparable to diplopia, a condition of inco-ordination in the action of the centres for our conceptions of space producing as it were a mental diplopia.

THE WEAK AND THE FLAT FOOT.

BY

A. MacKenzie Forbes, M.D.

Surgeon to the Children's Memorial Hospital.

Montreal.

Amongst the most common and yet painful deformities for which the surgeon is consulted is the "weak" or the "flat foot."

Nearly all orthopædic surgeons have contributed to the literature on this subject. Amongst the most important of these contributions are those of Lorenz, Hoffa, Ellis and Whitman.

Any surgeon, who visits the orthopædic clinics of both the old country and the new, will be struck by the diverse forms of routine treatment. In some clinics, a foot brace is rarely prescribed in the treatment of patients suffering from these affections, whilst in other clinics, an opportunity of suggesting such method of relief from the painful symptoms accompanying such deformities is rarely lost.

As all these clinics seem to relieve a proportion of those presenting themselves, it seems rational to suppose that there must be virtue in most forms of treatment, but that possibly one form of treatment is more suitable for some patients suffering from this affection than for others; that some by exercise, massage, proper boots and care in walking, may be relieved; that others may require a foot brace, and a few may not be relieved without operative procedures.

Last year, Osgood of Boston, in a paper read before the American Orthopædic Association, endeavoured to subdivide the affections now classified under the broad terms "Weak and Flat Feet" and to suggest the special form of treatment called for in each particular class, and it is to a modification of his classification that your attention is directed, these brief notes being simply an elaboration of his scheme of division.

Those interested in the details of the treatment are referred to the pathological conditions as studied in the works of Whitman, of New York, as it is on these that the rational treatment is based.

Hoffa has concluded from his study of these affections that of the acquired forms of flat foot, nearly 90 percent may be described, because of their method of origin, as of the static variety, consequently our attention may most profitably be devoted to this variety alone. This, the so-called static variety, may primarily be divided into two classes:—the flexible and the rigid. These will now be considered separately.

THE FLEXIBLE VARIETY.

In the majority of cases, this class represents simply an overstrain. This strain is accompanied by little or no muscular spasm. This class may be subdivided into (a) simple weak and (b) pronated feet.

(a) *Simple, Weak or Relaxed Feet.*

Here the longtitudinal arch without weight-bearing is normal for the individual and here pronation is slight. Pain, perhaps referred to the calves, and discomfort are the chief symptoms. They are usually easily corrected and never need operative treatment. Here the patient should be taught to walk in such a way that his feet are spared all strain. His attention should be drawn to the leverage action of the foot and exercises should be prescribed to strengthen especially the tibiales as the most important muscular supports to the arch.

The patient should be directed to wear boots that are made to fit his feet and which should be heavily soled and having a low flat heel. No brace is necessary or advisable but the arch may be supported for a time by strapping with adhesive plaster as suggested by Whitman.

(b) *Pronated Feet.*

Here pronation (shown by an apparent sagging of the internal malleolus and an eversion of the foot which brings the line of weight-bearing too far to the inner side) is the essential feature. The longtitudinal arch is depressed principally on weight-bearing. Exercises are the most important factors in the treatment of these cases, although the above treatment also should be prescribed. The exercises suggested here were

best described by Ellis in the "Lancet" of September 25th, 1886. In addition to this, a Thomas Heel may be used, or perhaps a temporary brace of celluloid or of spring steel of 21 to 26 gauge is employed. A rigid plate is never advised.

A more serious condition which really belongs to this class is:—*The Pronated Valgus Foot.* In this class the longtitudinal arch is depressed with and without weight-bearing. The arch may be tender to plantar pressure and here also, eversion is most marked.

The rigid support is nearly always necessary in these cases to prop up and support the relaxed arch. This should gradually be raised until the normal is reached when it may be substituted by a spring brace which should be used during those hours when the feet are subjected to but little weight bearing, the rigid brace being retained at other times. The treatment suggested in class (a) should also be maintained and it is advisable to seek some correction and relief of pain and tenderness before employing the brace by the use of manipulation and strapping with adhesive plaster.

RIGID FEET.

In studying this condition, we must first discover the cause of the rigidity. Let us ascertain whether it is due to muscular spasm, muscular contracture or adhesion. Often it may be necessary to employ an anæsthetic to find this out. When rigid, through muscular spasm, although the deformity be corrected, the spasm tends to recur. This muscular spasm is probably due to reflex action. The types of rigid feet may best be named:—(a) The Peroneal Type, (b) The Contracted Muscular Type, (c) The Fibrous Adhesive Type, and (d) The Bony Adhesive Type.

(a) *The Peroneal Type.*

Here the foot is rigid through spasm of the muscles and especially of the peronei. These on attempted inversion of the foot, stand out in a position of extreme tension. The arch is often quite high. There is less likely to be disturbance of the circulation in this than in the other forms of rigid valgus. There is usually marked pronation. The scaphoid is rarely unduly prominent. The peroneal spasm is, as has already been inferred, probably of reflex origin. Under an anæsthetic it disappears although these may be congenitally or relatively normally shortened, which condition is demonstrated by muscular spasm. In this class probably belong most of those patients who have in the past resisted all forms of treatment. All surgeons who have been interested in the valgus have experienced failures in the treatment of

certain patients. Perhaps a brace has been used with results detrimental to the surgeon's reputation. Possibly the deformity has been corrected under an anæsthetic and placed in plaster of Paris in a position most satisfactory to the operator and yet a recurrence has followed.

The treatment of this condition is peroneal resection, although this to my mind cannot be defended on theoretical grounds; practically it seems to be the only efficacious measure in some cases. This type has been studied principally by Mr. Robert Jones, of Liverpool, and in his hands the resection of ¾ inch to one inch of the tendons of both peroneals with the destruction of their sheath at the place of resection, has been followed by most satisfactory results.

(b) *The Contracted Muscle Type and* (c) *The Fibrous Forms* may be considered together except as to treatment. In the first type tenotomies are necessitated. Division even of the tendo Achillis being performed in some cases to assure proper correction, whereas in the second type wrenching is usually all that is required primarily.

In these there is inability to invert at the mediotarsal joint. The arch is usually low. There are usually signs of passive congestion and there may be œdema. Flexion and extension are free. Attempts to passively invert are followed by pain and resistance. The latter may usually be overcome and the foot over-corrected by tiring out the muscles which are spasmodically contracted. If this is impossible even under an anæsthetic, the adhesions must be more forcibly broken down by manual manipulations or by the use of the Thomas Wrench, and the patient's foot put up in a position of extreme inversion in plaster of Paris. Osgood has suggested that the plaster is best removed in twenty-four or forty-eight hours. The foot at first gently and later vigorously manipulated and then returned into its plaster splint. Within a week active exercises may be begun. Massage is most useful in such cases. In the past, it has been the custom to leave the plaster of Paris intact for some weeks but orthopædists now have more generally adopted massage as a curative agent of prime importance in many of even the acutest lesions such as fractures, ligamentous ruptures and inflammatory exudations.

The secondary treatment indicated is the application of a well-fitting rigid brace of the class suggested by Whitman, of New York, and made from a cast taken of the foot early after correction. This must be used for some time in conjunction with the treatment suggested for Simple Weak Feet.

(d) *Bony Adhesive Type.*

The diagnosis in these cases is made by the history of a long standing deformity which is more or less irreducible even by wrenching under

anæsthesia. In the hands of Painter (*Vide Boston Medical and Surgical Journal,* August, 1905.) of Boston, excision of the scaphoid has been followed by excellent results in such cases.

The routine treatment suggested is an attempt under an anæsthetic, to manually or instrumentally better the position; failing in which the scaphoid may be excised with the object of decreasing the length of the inner border of the foot. This excision is to be followed by wrenching with the Thomas Wrench. The feet are then kept in the position of extreme correction in plaster of Paris for at least six weeks: subsequently a rigid foot brace is employed in conjunction with routine methods for strengthening the feet.

In conclusion, I would say that pain should be our indication for operative interference. Absolute sinking of the arch without pain rarely calls for interference.

NOTE.—The Thomas Heel is a low, flat heel running obliquely forward and inwards which terminates at an angle at the centre of the arch. The apex of this angle should be from ⅛ to ¼ inch higher than any part of the heel, which should gradually fall away both in a posterior and external direction. Often a small piece of leather of the same thickness is let into the sole at its posterior and internal angle as well.

ANEURYSM OF THE INTERNAL CAROTID.

BY

W. A. MOLSON, M.D. AND A. H. GORDON, M.D.

The following case which occurred in the medical service of The Montreal General Hospital presented features of interest from the standpoint of diagnosis and also from the comparative rarity of the post mortem findings sufficient to justify reporting it.

A coloured man, a porter by occupation, was brought into the hospital unconscious on December 1st, 1906, and the following history was obtained from his friends.

He had been losing weight for a year, and since an attack of pneumonia six years ago had had a persistent cough, worse during the last year.

About 3 months ago, on rising in the morning, he complained of great pain in his head and fell back unconscious and remained so for about half an hour.

Recovering consciousness he vomited what was said to be blood.

For two weeks he remained at home with persistent headache, frontal and occipital, so severe as to keep him awake at night. After his fortnight's rest he tried again to work but had to give up on account

of headache. His appetite was good and he did not vomit. On Nov. 11th he had another attack of unconsciousness. It was said that he had a fit, and on recovering was unable to find his way home. He worked again the following day but did not go back again for two weeks. He went to work on Nov. 26th and on the morning of the 27th he complained of intense headache and said he was unable to see out of his left eye. With this he had also severe pain in his back but walked about that day without difficulty. The following day he remained in bed and did not want to talk, and the day after, the 30th November, was found by his wife unconscious, and breathing noisily. Inquiry into his family history showed that he was the father of five children, one alive, one born prematurely, and 3 dead of different forms of tuberculosis. Otherwise his history was negative. On admission he was found to be a well developed negro of 40, deeply unconscious, his breathing was laboured but regular. The face showed no paralysis but the right side of the body was limp and neither arm nor leg was seen to move, but there were occasional movements of the left side. The neck was markedly rigid and the head inclined slightly to the right. Both pupils were inactive to light and the right was contracted to a pin point. A pin prick was felt on the left side but on the right was not perceived. All the reflexes, superficial, deep, and organic, were absent but Kernig's sign was unmistakably present. The pulse was rapid, of high tension (160 mm.) and the radials much thickened. His heart showed enlargement laterally and the 2nd aortic sound was accentuated. Examination of the lungs showed a slight impairment of the note under the right clavicle with a few moist sounds. The urine was acid, sp.g. 1016, contained some albumin and a few casts. The eyes were examined by Dr. Mathewson whose report I quote:—"In the right eye neuritis is to be made out in upper part of the nerve only, and in adjoining retina. In the left eye there is a very marked neuritis with numerous hæmorrhages in nerve and retina, some being very large." On the following day the temperature rose and a clonic spasm appeared in tongue and lips with an occasional tremor of the whole body. Later in the day a distinct left sided paralysis of the face came on. A lumbar puncture made at this time withdrew 2 drams of blood stained fluid which contained no micro-organisms. A blood count showed a leucocytosis of 13400. On December 5th cardiac and respiratory failure ensued and death occurred. On this day some hours before death a distinct ptosis of left eyelid with external rotation of the eye were noted. The ante-mortem diagnosis was tuberculous tumour of the brain with terminal meningitis. The diagnosis of

tuberculous tumour was based upon the prolonged history of headache with attacks of unconsciousness, the loss of weight, prolonged history of cough and signs of pulmonary disease and family history of tuberculosis. The signs pointing to meningitis were: The sudden increase of symptoms within the last few days, the rigidity of the neck, unequal pupls, rapid pulse and elevated temperature, the leucocytosis, Kernig's sign, the crossed paralysis and the presence of a severe neuro-retinitis. Features which, perhaps, were not given sufficient weight were the rather pronounced cardio-vascular-renal changes, the age of the patient and the bloody cerebro-spinal fluid. This at the time was regarded as accidental. What the post mortem diagnosis was will appear from the autopsy report by Dr. R. C. Paterson from which I quote: "On reflecting the dura mater there is seen an extensive subdural hæmorrhage on the left side covering the whole cerebral cortex and extending down into the spinal canal. This comes from a small aneurysm the size of a marble on the posterior aspect of the left internal carotid. The aneurysm is saccular and is filled with clotted blood which is partly dark and partly light. The communication with the artery is a 2 mm. opening situated just at the junction of the carotid with the posterior communicating artery. There is a small rupture in the sac of the aneurysm on its under surface from which the hæmorrhage took place. The aneurysm lies at the beginning of the sylvian fissure, pressing against the inner aspect of the tempero-sphenoidal lobe. The arteries at the base of the brain are very sclerotic. The convolutions over the L. hemisphere are flattened from pressure of blood.

Eyes.—The right shows irregular retinal hæmorrhages external to optic disc. The left shows severe irregular hæmorrhages one at centre of disc, and another around it. The heart muscle is of good colour, the left ventricle much hypertrophier. The endocardium and aorta are free from disease but the peripheral vessels are much sclerosed. The lung shows a healed tubercle at the right base. The kidneys show a moderate grade of chronic nephritis. Aneurysm of the cerebral arteries was found by Osler 12 times in 800 autopsies, and in Newton Pitt's statistics, 19 times in 9,000 in Guy's Hospital.

MEETING OF CANADIAN MEDICAL ASSOCIATION.

The Committee on papers and business desire intimation of papers or other matters to be presented at the forthcoming meeting at Montreal, September 11th, 12th and 13th, 1907. Papers will be limited to fifteen minutes and are to be submitted to the Committee three weeks before the meeting.

THE

Montreal Medical Journal.

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THE MORAL TREATMENT OF DISEASE.

New England produced and nourished Christian Science, Eddyism and many another cult and it is just that Boston, its centre, should institute the antidote. There are many men in that city who view with growing alarm the hold that faith healing, in whatever guise, has obtained and they realize that the science of medicine has too long neglected the opportunities offered for the cure of certain diseases by the employment of the predominance of the mind over the body in the class of cases suffering from what we call functional disease. Therefore a combination of church and the science of medicine has taken place, and at one of the churches in the city of Boston a dispensary has been established for the treatment of cases of disease, other than organic, to which each patient must bring from his or her physician, a certificate stating the willingness of the physician that treatment should be given.

The staff consists of neurologists and clergymen, and no legitimate means of treatment, such as hypnotic suggestion for example, will be untried, by the former, whereas the latter will doubtless aid by the employment of that sensible advice that has already done so much in the "suicide bureaus" established by the Salvation Army. Religious belief on the part of the patients, while considered desirable by the staff, will not form the subject of enquiry, and, finally, no payment will be accepted in return for the services offered. To the last particular, we would direct the attention of all who may be disposed to class this organization among the many "cults" and schools of healing, which have so much overrun the world.

Since material gain is not only unsought but refused, if offered, we think there is no doubt of the philanthropic intentions that underlie this movement; since scientific men are to do the work involved, we can be sure that the treatment will be carried out upon the basis of experience rather than upon that of fanaticism, and there can be no doubt that the modes of treatment usually employed by faith healers of all kinds will be applied with at least judgment and knowledge. For these reasons, we hope that the new venture will have a chance of proving itself, although there is no reasonable doubt that the fondness of mankind for being fooled will keep many away from a place where they may expect not to be fooled. When scientific men are ready to use the instruments that have often proved effective in the hands of the ignorant, we may look for a more discriminating use of those instruments than before: for the placing of one's body and mind in the hands of a man ignorant of what is already known of their structure and physiology is exactly comparable to asking the butcher to give a legal opinion, or the furnace man to prepare the architectural plans for a new house; where good property and good money are concerned, people are not such fools as to run risks. Before we leave this part of the subject, we may be allowed to direct our readers' attention to the series of articles appearing in recent numbers of McClure's Magazine upon the life and progress of Mrs. Eddy; they give not only an insight into the growth of Christian Science, so-called, but they form a most interesting case report, between the lines of which any one slightly skilled in psychical disease can easily read. We have merely mentioned, what is worthy of strong emphasis, that the physicians in charge of the dispensary in Boston, will not treat any disease known to be organic, because they boldly state their conviction that the mental treatment of disease has no effect upon the processes of pathological change.

A QUESTION OF PRIORITY—AND HONESTY.

It is sometimes difficult to assign in a given case the right of priority of discovery, where observers have made the same observations independently, in ignorance of one another's claims in the matter, but the case to which we here refer bears no such difficulties. In the *Lancet* of March 23, 1907, Dr. Bashford and Mr. Murray of London publish a paper upon "Carcinoma Mammae in the Mouse" in which they say that Clowes and Gaylord, of Buffalo, have confirmed their findings with regard to the spontaneous disappearance of transplanted mouse-tumours; the facts are that when Clowes and Gaylord and Bæslack first announced early in 1905, the retrogression of a number of such tumours, Bashford commented on certain oversights that they had made, and made a most positive statement that but one in 3,000 mouse-tumours had retrogressed, and this one had not disappeared, but only diminished in size. Subsequent to this, Dr. Bashford made more than one publication including the Annual Report of the Cancer Research Fund, in which no mention of so important a discovery is recorded. In July 1906, previous to which time Clowes and Gaylord had repeatedly published confirmatory evidence of their observations, Dr. Bashford calmly reports a large number of "disappeared" tumours, and cases of immunity to inoculation by tumours, stating that this is confirmatory of what he had previously stated. This is, at least, suppressing the truth that the American observers had known and stated all this long before: but when Mr. Edmund Owen in his Bradshaw lecture, lauded Bashford as the discoverer of the spontaneous cure of cancer and the transmission of immunity, Dr. Bashford took no opportunity of stating that this was untrue and undeserved praise.

At the British Medical Association in Toronto, in August 1906, the state of affairs existing between these observers was well known, and Clowes remonstrated in a mild way with Bashford, who declared that he had no intention of doing any injustice to the former. Yet in the face of this, we see the repeated assumption of priority of discovery by Dr. Bashford: this disregard for plain statements of truth recalls Falstaff's account of the Gadshill affair, in every way but its humour, and we can see no other solution of the matter save that Dr. Bashford state definitely that he has no right of priority in this matter, and that the American observers are entitled to the credit which he has improperly attempted to take from them. The references to literature are uncontrovertible, are in our hands at this moment, are well known to many scientific workers on both sides of the Atlantic, and we need do no more than appeal to the fair-mindedness of English-speaking men to

be certain that justice will be done. We take the opportunity of stating that this reference is not inspired by any of the authors concerned, but arises from our own wish to make clear our views as to where lies the truth.

RECONSTRUCTION AT McGILL.

The work of reconstruction and temporary provision for the needs of the Medical Faculty was begun as soon as the fire ceased burning and is going on uninterruptedly ever since. Rebuilding was at once determined upon, and the dismantling of the walls of the burned and damaged parts of the college building has already progressed far; although many details are as yet unsettled the authorities are determined that the buildings will be adequate, and adequate not only for the reputation of the Faculty of Medicine, but also for future needs and expansion. We may say that the insurance on the buildings has been adjusted, and the money thus available will amount to $250,000. The valuation of the contents, equipment, etc., is proceeding as rapidly as possible, and this will produce possibly $75,000 more. Yet, $325,000 will not nearly suffice to rebuild; to reconstruct satisfactory fire-proof buildings on the same scale as before will cost nearly $200,000 more than this, and it is likely that an increased capacity will be necessary. Plans have already been discussed and conditions drawn up for a competition limited to some half-dozen firms of architects; from which it is hoped that the new college will, as a building, be a credit to the University and to Montreal. The spirit that possesses the Faculty is indicated by the fact that its plans for future progress are stimulated, rather than arrested; it will be remembered that before the fire took place, the Faculty had decided upon the introduction in 1907 of the new five-year course, and, despite the disaster, there is no thought of abandoning that necessary change; this will, therefore, require consideration in the plans for the structure.

The crying need of the next few years is money; great as was the need three months ago, it is, by reason of the fire, now at least $200,000 greater. In answer to the question, " Where is it to come from and we would say that it should come from every one who has at all the interests of McGill University at heart—nay, even who has an interest in university education. This means graduates, faculty and laity. From the faculty have already come offers of willingness to subscribe, and it may be here said that the opinion is widespread that the faculty members are the first ones to benefit by the medical school. We are betraying no secret when we say that the members of the faculty are

not by any means well paid—not even decently paid, as the lay mind conceives payment. If the Medical Faculty were to disappear to-morrow, it is doubtful if every member of the teaching staff would not be monetarily richer for the employment otherwise of his time. We say this to emphasize the fact that it is McGill University that needs the Medical School, and not the faculty, and that therefore their willingness to assist has not necessarily any self-seeking end. As to the graduates, some have already expressed their readiness to assist, and this is necessarily a matter for each man's consideration of how much he owes to his Alma Mater. Lastly, as to the lay donors, from whom the greatest part of the financial assistance is hoped, we venture to think that our own university has been too much left to the hands of the few, and that McGill has, perhaps, received less money than if she had had many generous patrons. Several have given princely sums, some have given large sums, and this being so, the public mind has come to regard it as a settled affair that the University should look, on such occasions, to these men for help. This is by no means fair to the gentlemen in question, because they have always been far from attempting any overweening authority or prominence because of their gifts; and even if from their wealth they should be willing to contribute once more, they would nevertheless be gratified to see that their example was being followed by others, albeit in a smaller way. Not for a moment would we say that gifts should be made with any desire of pleasing this or that patron, or this or that body of men; gifts should be made because the University stands in the direst need of them. If McGill has brought credit to Montreal, to the Province of Quebec, to Canada,— and who will gainsay it? — the time has come to acknowledge it; if McGill is to continue to spread the reputation of Montreal and the Province of Quebec and Canada, it is now that she needs the help to do it; the rich of the country have recognized that a university is one of the sanest investments that can be made, having in view a country's development, and this being sound wisdom, the principle must not be relinquished.

THE COMING SESSION AT McGILL.

"God tempers the wind to the shorn lamb." It is not a little remarkable that while more than two-thirds of the medical building have been destroyed, the remaining rear part, damaged though it was, lends itself admirably to the needs of the first two years of the curriculum, so that with relatively little alteration, and that of a temporary character, all the teaching of these years can be, not merely undertaken

within it, but undertaken without crowding or confusion. The large lecture-room, capable of seating 400, is of such a form that it can be divided to make two good theatres; the department of Medical Chemistry is intact, as are those of Pharmacology and Hygiene; the research rooms of the Physiological department are destroyed, but the main laboratory is practically undamaged as regards its fittings; the large and well-lighted class-room of pathology, which had the greater part of its fittings destroyed by fire, affords an admirable dissecting room, being, in fact, as large as the old room which was destroyed. The laboratories of pathology at the General and the Royal Victoria hospitals provide, in the meantime, the necessary material and facilities for teaching both pathology and bacteriology. The work of teaching can thus be carried on during the next session and until the college is rebuilt, without serious disturbance, the students of the later years being encouraged to receive most of their teaching at the hospitals, in exact accord with the desires of the Faculty as indicated in the curriculum drawn up for the five-years course; in other words, the increased use of the hospitals for teaching purposes during the last two years is, through the fire, brought about two years earlier than would otherwise have happened.

A DISTINGUISHED HONOUR.

Dr. Thomas McCrae, Associate Professor of Medicine in the Johns Hopkins University, has been elected a Fellow of the Royal College of Physicians of London. We congratulate Dr. McCrae upon his attainment to the honour at such comparatively early years. There are now but two Fellows of the College of Physicians in America, and if we mistake not, the last occasion on which the degree was conferred on this side of the Atlantic was the election of Dr. William Osler in 1883.

Reviews and Notices of Books.

The Johns Hopkins Hospital Reports. Studies in Urological Surgery, Vol. XIII. Baltimore: The Johns Hopkins Press, 1906. Hugh Young.

The work of the Genito-urinary department of Johns Hopkins, which from time to time has appeared in the *Bulletin* is here collected and presented to us in a concise and serviceable form. Twenty-one studies in all, beginning with Young's modification of Kollman's 5 glass test under the formidable title of "The Seven Glass Test," ending with a

description of the department as organized in the Hopkins Hospital, they embrace subjects of genito-urinary interest, many and varied. Bladder diverticula; the use of the cystocope; paraurethritis; urethrorhagia; urethral diverticula; recognition of tubercle bacilli in the urine, and many other subjects are here treated with the characteristic care and carefulness of Young's clinic. To these articles, all apparently inspired by Young, other members of the staff, present or past, churchman, Watts, Fowler, Geraghty, Stevens, Lehr, Bætjer, all contribute; in fact, without competent and keen assistants, the work had been impossible.

Among the more notable papers is that dealing with chronic prostatitis — a most painstaking, elaborate, and exact treatise. The bacteriology of the disease, almost always the result of an infection, is of interest; out of 19 cases carefully examined but six showed bacteria of one form or another. That the gonococcus, however, is the worst offender in this respect is the firm conviction of the author, if we understand aright. What makes the paper and all others here contained not only of more interest, but of infinitely more importance as a scientific contribution, is the number of clinical and pathological cases, described in detail, which serve to illustrate and confirm the authors' contentions.

"Bladder diverticula" is a most interesting paper and quite the best it has been our privilege to see on this little understood subject. From a surgical standpoint this is not surprising, as to Young belongs the honour of having a larger number of operated cases to his credit than to any other reporter, three out of a total of eight cases in the literature. This contribution serves also to demonstrate the faith of the Hopkins Genito-urinary department in the proper use of the cystoscope: to quote verbatim, "Increasing experience impresses me more and more with the great importance of careful cystoscopic examination," other methods, even cystotomy, "are not visual, consume valuable time when delay is to be avoided and at best are never so thorough as visual exploration with the cystoscope." The diagrammatic representation of various cystoscopic findings, a most ingenious device, as well as an old familiar friend, is here described. Young himself, by the by, is one of the earliest to invent a retrograde cystoscope, but has been unnatural enough to sacrifice his child for the sake of a simpler procedure.

A question, perhaps, of more widespread interest—viz., the differentiation of the smegma bacillus from the B. tuberculosis—is treated at length. As is well known the methods advanced for distinguishing these are legion. Here the conclusions of the investigators possess at any

rate simplicity. In effect: there is no method of rapid differentiation—morphology—preliminary treatment with alcohol, etc., staining are not sufficient in very many cases to distinguish one from the other. Cultures and animal inoculation consume too much time, where time is valuable. The authors are, therefore, reduced to removing all the smegma bacilli from the urethra, etc., before the collection of urine; this, as is vouched for by a long and elaborate series of experiments, they are always able to do by thorough washing and irrigation. This has proved superior to catheterization. Where then, after such preliminary treatment acid fast bacilli are to be found in the urine, we may conclude we have to deal with the tubercle bacillus. Our own experience would tend to support this view.

While no definite description of the perineal prostatectomy advanced by Young is to be found yet many applications of the method with necessary explanations occur, *e.g.*, "The modern operation of perineal lithotomy." The perineal route is advanced on the ground of lower mortality, even in these days of aseptic surgery. Churchman, in "Para urethritis," by which he means an infection of the abnormal sinuses and diverticula about the glans penis, shows how impossible it is to kill off the gonococcus by local application of even strong measures, a fact which shows, to use his own words, "Why gonococcides are as numerous as uric acid solvents and equally effective."

Pyonephrosis due to the typhoid bacillus—ten years after the original infection—demands more than passing notice. "Nephritis and hæmaturia," by Fowler, discussing, as it does, the question of the so-called hæmophilic kidney or nephralgie hæmaturique—or angioneurotic kidney, is notable. Israel and Roosing, among others, have urged that careful pathological search in these cases will reveal some definite lesion. Senator, on the other hand, holds out for a possible unexplained hæmophilia. The present paper tends to support the former view—in the present instance a chronic nephritis.

We miss the date of publication of these papers—all, however, can be found in the Hopkins *Bulletin*. They represent collectively the work of the department and, therefore, have an added interest. Altogether the volume is one it has been no small pleasure to read, containing as it does a large quantity of interesting material and many useful references. We congratulate Dr. Young and his assistants most heartily, and trust material for a second volume will soon be accumulated.

MEDICAL DIAGNOSIS; A Manual for Students and Practitioners. By CHARLES LYMAN GREENE, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota; Attending Physician, St. Luke's Hospital, the City Hospital and the St. Paul Free Dispensary, etc., etc. Philadelphia: P. Blakiston's Son & Co. Limp leather, 683 pages, with 7 coloured plates, and 230 illustrations. Price, $3.50.

This is not a mere compend, nor is it intended to replace the larger works on the subject, but is an admirable "manual" which deserves the name. It should become popular, especially with students. The matter is well arranged, and the book well written. Symptomatology and diagnosis are treated concisely and adequately. Special features deserving of commendation are the helpful marginal annotations, and the numerous illustrations which from their clearness lose nothing by their unusually small size. There is a full index. The typography and paper are excellent.

A MANUAL OF NORMAL HISTOLOGY AND ORGANOGRAPHY. By CHARLES HILL, Ph.D., M.D., Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. 12 mo., 463 pages, with 312 illustrations. Philadelphia: W. B. Saunders Co., 1906. Flexible leather. Price, $2.00. Canadian agents; J. A. Carveth & Co., Toronto.

This manual is intended for elementary students, and is well adapted to its purpose, combining brevity, and conciseness. Embryology is kept well to the fore, and here and there in the text interest is stimulated by passing reference to practical points in pathology. The structure of the teeth is discussed with unusual fullness. The illustrations are many and excellently clear.

TICS AND THEIR TREATMENT. By MEIGE and E. FEINDEL, with a preface by PROFESSOR BRISSAUD. Translated and edited with a critical appendix by S. A. K. WILSON, M.A., M.B., B.Sc., resident Medical Officer National Hospital for the Paralyzed and Epileptic, Queen Square, London. London: Sidney Appleton, 1907. Price, 7 shillings.

Meige and Feindel commence their monograph on the Tics with the interesting confessions of a victim of the disease. They trace the pathology and ætiology of its various forms, showing how, starting as a voluntary act, under the influence of weakened will power, force of repetition changes the voluntary act into an automatic habit. Tics

are thus carefully differentiated from muscular spasms in which the cortical intervention plays no part. This primary voluntary act may be the result of peripheral stimulus originating a cortical reflex whose expression is a motor reaction, or its reaction may take place where the stimulus is entirely cortical; in other words, an idea may be the starting point of a movement which may in its turn degenerate into a tic. Mere repetition does not, however, evolve a tic in every case—"not all who would may tic." The psychical predisposition in the shape of volitional instability is necessary. The various forms of treatment with special reference to the re-educative methods are taken up thoroughly and clearly.

Meige and Feindel's work is indeed well enough known, at least in Europe, and Dr. Wilson is to be congratulated on having produced a most excellent and readable translation which is an acceptable addition to English medical literature.

C. K. R.

Medical News.

AMERICAN MEDICAL EDITORS' ASSOCIATION.

The 38th annual meeting of this Association will be held at Atlantic City on Saturday, June 1st, and Monday, June 3rd, with headquarters at the Marlborough-Blenheim Hotel. This active Association now numbers nearly 150 members with many applications in hand for action at the coming meeting. An interesting programme has been prepared, and the following are among the papers to be presented:

PRESIDENT'S ADDRESS.

The future of Medical Journalism, by Jas. Evelyn Pilcher, M.D., Ph.D., LL.D.

Shortcomings of Physiology, the Chief Obstacle to Medical Progress; The Need of Editorial Intervention in such Questions, by C. E. and de M. Sajous, M.D., Philadelphia, Pa.

How Can We Make Medical Journalism Better?

a. For Our Readers.

b. For Our Advertisers.

c. For Ourselves.

By W. C. Abbott, M.D., Chicago, Ill.

A Word or Two from an Ex-Journalist. By Samuel W. Kelley, M.D., Cleveland, O.

The First Medical Journals. By O. F. Ball, M.D., St. Louis, Mo.

The Psychology of Medical Journals, from the Reader's Standpoint. By T. D. Crothers, M.D., Hartford, Conn.

Further Reflection on the Official *versus* Independent Medical Journals; One Year's History. By Wm. J. Robinson, M.D., New York City.

Journalistic Suggestions from a Semi-Disinterested Standpoint. By Wm. Porter, M.D., St. Louis, Mo.

The Situation. By C. F. Taylor, M.D., Philadelphia, Pa.

Some Aspects on Medical Journalism. By W. F. Waugh, M.D., Chicago, Ill.

The Neglect of American Mineral Springs and Climatic Resorts by Our Medical Press. By G. T. Palmer, M.D., Springfield, Ill.

A Few Feeble Remarks. By W. A. Young, M.D., Toronto, Ont.

The American Medical Editors' Association, Past, Present and Future. By Joseph MacDonald, Jr., M.D., New York City.

On account of the largely increased membership of this Association, it is anticipated that the coming meeting will exceed any prior meeting in point of attendance.

The Annual Editors' Banquet, which is always the social event of the week, will be held at the Marlborough-Blenheim Hotel on Monday evening, June 3rd.

THE QUEBEC SANITARIUM.

At a meeting of Protestant citizens of the City of Quebec, held on May 21st, Hon. Richard Turner, the chairman, announced that the subscriptions had reached the sum of five thousand dollars yearly for five years for maintenance, and twelve thousand seven hundred dollars for the building fund—a total of $37,720. With this in hand building will be begun and its is hoped that the building will be occupied in the spring of 1908 by sixteen to twenty patients and the staff. The building committee favour construction of a building similar to the Reception Cottage at Saranac Lake.

We need scarcely say how admirable this movement on the part of the Quebec citizens is nor how heartily we wish them good fortune with their work.

It has been determined that the Sanitarium will be situated at Lake Edward, P.Q., where the Government has given a choice of two sites, each comprising two hundred and fifty acres; one on the banks of the Batiscan a mile or two south of Lake Edward will, in all probability, be chosen, where railway facilities are possible, and a station will perhaps be provided by the Quebec and Lake St. John Railway.

DR. JOHN McMILLAN, OF PICTOU.

By the death of Dr. John McMillon, which occurred at Pictou, N.S., early in May, the profession has lost one of those who represented its very best type. Born in 1834 at London, Ont., a graduate of Queen's and McGill, Dr. McMillan practised at Wallace, Sherbrooke, New Glasgow and Pictou. His fiftieth anniversary as a practitioner was suitably acknowledged by his fellow-townsmen but a few weeks ago, and after a few weeks illness, he died, not rich in money, but rich in the love and gratitude of friends and patients. His loss is referred to by the local papers with a depth of sympathy and sorrow that one rarely sees; and those who knew him personally say that it is but the natural outcome of a long life unselfishly squandered for others; the labour and care he gave freely stands to-day in the reputation he gained for generosity and unselfishness and duty well done.

The Pathological Society of Philadelphia, which is one of the oldest, if not the oldest society, of its kind on this Continent, celebrated its semi-centennial in May, 1907. Instituted at a time when pathology scarcely had a foothold in this country, it has kept pace with the development of that science, and has had a share, not only in giving Philadelphia its eminence as a medical centre, but also in fostering the scientific spirit in America.

The celebration, which may rightly be considered an event of national importance, extended over two days, Friday, May 10th, and Saturday, May 11th, 1907. On the first day, addresses were delivered by Dr. Frederick G. Novy, of Ann Arbor, Michigan, on "The Role of Protozoa in Pathology"; by Dr. Simon Flexner, of the Rockefeller Institute, New York, on "The Newer Pathology"; and, by Dr. A. E. Taylor, of the University of California, on "The Dynamic Point of View in Pathology."

In the afternoon, at four o'clock, a commemorative meeting was held in the Pennsylvania Hospital, where the first meetings of the Society, in 1857, took place. At this meeting, Dr. William Osler, Regius Professor of Medicine, Oxford University, delivered an address on "Pathology and Practice." At a dinner in the evening, prominent men from all parts of the country responded to toasts. An exhibition meeting of interest to pathologists, clinicians, and surgeons was held on Saturday, May 11th.

Dr. Paul Prager, of Vienna, recommends that an imprint of the palate be taken as a means of identification of criminals, holding that it is a more reliable method than that of using the finger prints.

The American Medical Congress held at Washington on the 6th, 7th and 8th of May was largely attended, a number of physicians from Toronto and Montreal being present. The members of the Congress were received at the White House by President Roosevelt.

Dr. William Osler was present at the annual McGill convocation on May 4th. He has already returned to England, after attending the Congress at Washington, and the Semi-Centennial of the Philadelphia Pathological Society.

Dr. G. Tweedie, for many years resident superintendent of the Isolation Hospital, Toronto, has resigned from that post, after sixteen years service.

Prof. Gustave Killian, of Freiburg, Germany, attended the Ontario Medical Association in Toronto, and visited Montreal on his way eastward.

The Medical Reading Room is at present in the Arts Building, where the current periodicals can be consulted.

Dr. James D. Mosher, of Rawdon, Hants Co., N.S., died early in May.

R. D. Rudolf, M.D., M.R.C.P., of Toronto, has been elected a member of the Association of American Physicians.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

R. P. Campbell, B.A., M.D. "Retrospect of the Surgical Literature for 1906-7 of the Thorax and Genito Urinary Organs."

Progress in these departments during the last year has been of the steady, plodding order rather than of the firework description involving as this order does, quantity rather than quality. In the recognition of modern methods of diagnosis and treatment of diseases of the genito-urinary tract, and in the placing of these methods on a sound and firm

foundation of fact, we find the greater part of last year's labour in this section. This applies more especially to the kidneys and to the prostate: gland only so far as the other organs of this system depend on these has any marked change been effected.

To begin with the urethra—everything remains in *statu quo.* Urethritis of gonorrhœal origin and its treatment are said to be as old as the Egyptians, and, with a partial exception, only those periodic variations occur which one learns to expect in all medical questions, whose foundation is unsatisfactory. The partial exception refers to the work of Wright, who has achieved in acute cases of urethritis and of gonorrhœal arthritis a very considerable amount of success. The chronic and sub-acute cases, however, do not lend themselves so readily to the influence of the vaccine.

The testicle detains us only long enough to mention that the influence of the X-rays on these organs has been largely confirmed, and, at least in some cases, a definite aspermia is found to result.

We have already had an opportunity to discuss the prostate before this society, so that on this occasion suffice it to remind you that the long debated question of treatment of prostatic hypertrophy is practically settled in favour of radical treatment, either by the suprapubic or perineal route, while the Bottini operation still finds supporters in certain suitable cases. (Sonnenberg, Bottini; Kummel, special Bottini; Young, perineal Bottini.)

Freyer (206 cases, 8 per cent. mortality) who, whatever his pretentions, has done much to bring the operation before the public, is still in controversy with Mayo Robson, Fuller and others over the questions of priority and originality. His method, as you remember, is the suprapubic one, enucleation of the gland by his finger. His claims are that the entire gland is removed and the urethra left intact, both of which facts seem to the anatomist an impossibility, while the pretension to priority is ludicrous in view of the work of McGill and Fuller. Mr. Freyer is, however, apparently equal to all his adversaries.

In the diagnosis of prostatic disease the importance of cystoscopic examination of the prostate has become of paramount importance. So many prostates may feel large to the examining finger and prove innocent as far as the bladder is concerned, and contrariwise, small per rectum and with a large middle lobe, that the preliminary examination has found a part in most large clinics. Young—among others on this side—Caspar in Germany, Fenwick in London, are its advocates. Results from this operation are so good that 8 per cent for suprapubic and 6 per cent mortality for perineal have been given in two or three

(even four) large series of cases. The origin of the enlargement has not received any further light, it does not seem to be closely connected with prostatitis, acute or chronic, but the trend of opinion is to that of a new growth—on the other hand the infective origin of chronic prostatitis has gained ground (*J. H. H. Bulletin*), and whereas Young and others contend that gonorrhœa is the most frequent cause (this in spite of the fact that it is but rarely found), others again hold a more conservative view.

In an extremely interesting paper in *Am. Journ. of Surg.*, dealing with carcinoma of the prostate, Young called attention to the fact that this disease could be treated radically. The growth as is well known tends to extend backwards along the lymphatics, which run between the seminal vesicles. The growth is slow and metastases commonest in the bones. By an extensive dissection of the perineum and removal of the neck of the bladder and of the prostate, going almost as far back as the urethral openings, Young has several cases living without evident disease and good bladder control.

Work on the blader itself has not been extensive; beyond some experiments on dogs by Bell, reported in the *Practitioner* for March, where the importance of the so-called involuntary sphincter was demonstrated, nothing is worthy of notice, except some work on tuberculosis by Walker, of Baltimore, which we will refer to in speaking of the kidney, and a paper by Young, advocating a return to the perineal route in operating for stone. Papillary tumours of this organ have also come in for some attention, but conclusions are vague. The operating cystoscope offers perhaps the best method of dealing with them, but at best results are poor and recurrence the rule.

If the literature of the lower tract has been scanty, that dealing with the kidneys has been profuse, more especially in the German, where the functional diagnosis of these organs has received more than the usual modicum of attention. Nothing strikingly new in the method of estimating the function has been brought forward, but such tests as the methylene blue test have been largely discarded, while the importance of urea and specific gravity determinations has been enhanced. The freezing point of blood (Cohn .53 to 1; Caspar .56) and of the urine, and the production of phlorizin diabetes have each gathered a small number of adherents. Kummel appears as the firm advocate of the former, claiming that since his dependence on the test he has had no case of kidney death except in two striking instances where he neglected its warnings. Caspar has upheld the phlorizin test as giving him equally good results, while Israel and Rovsing, among many others,

have held that these tests may be neglected. With few exceptions, however, the value of a comparison of the work of one kidney with the other has been brought forward, and if we may express an opinion, it is to this rather than to any one test that the undoubted improvement in result is due. Kummel further made a statement in a paper in *Surgery, Gynaecology and Obstetrics,* of January, '07, that stone in the kidney could with proper technique be demonstrated in every case, a statement corroborated by Israel and Berk, J. Am. Med. Ass., December, 1905, which will appear to most of us too gross, but with a very considerable amount of truth. Most surgeons of genito-urinary interest have discarded the segregator in favour of the ureteral catheter. Whilst among German surgeons, and in a limited number of American clinics, the use of these catheters is in vogue, amongst the English surgeons simple cystoscopic observations of the bladder and ureteral orifices and of the streams of urine issuing from these seem to be the main points of reliance. It is remarkable in what numbers hypernephromata are now found: in the literature of the last year they are of the commonest occurrence. Tuberculosis of the kidney is now looked upon by many as a primary infection, if not pathologically, at least clinically and therapeutically—a number of instances have occurred in which disease of one kidney has persisted for long years without disease elsewhere, except, perhaps, in the bladder, and where removal has apparently resulted in complete cure. On the other hand, primary tuberculosis of the bladder has ceased to exist—in 10,000 autopsies cited by Walker, but one case could with any degree of certainty be considered as primary tuberculosis of the bladder—the infection as a rule is from the kidney. The proper use of tuberculin offers the best method of treatment.

The question of a one-sided nephritis has occupied everybody's mind—the ureteral catheter promised to throw some light on this—but success has not been great: undoubted cases of one-sided nephritis have been reported, but in many instances the original cause has been traumatism, and here the matter rests to-day. The question of idiopathic renal hæmorrhage is, perhaps, brought one step further, and seems now to rest on an inflammatory basis, as many of these cases on careful and methodical pathological examination have shown evidences of more or less advanced nephritis.

The effect of anæsthetics, local and general, on the kidneys, though by no means new, is of importance. Thompson (B. M. J., March, 1906) found that all general anæsthetics completely interfered with kidney function—suppression—for a more or less extended period, a fact our own experience substantiates.

Other literature deals with the effect of X-ray on kidney tissue. Experimentally, a definite nephritis is produced.

Decortication has come in for the usual amount of criticism. Experimentally on rabbits results show that for a time part of the kidney performs a greater amount of work than formerly—that a new capsule, harder and denser, is formed without the elastic tissue of the normal capsule, but that a definite blood supply does exist through this capsule and surrounding parts. It is, according to Israel, probable that in cases of complete suppression or threatened uræmia, decapsulation may be a life-saving operation.

Lavage of the pelvis of the kidney by means of the ureteral catheter has not advanced beyond the experimental stage—nor have such diagnostic methods as filling pelvis with collargol-solution and taking an X-ray skiagraph.

Nephropexy is still under debate—various new operations have been described, all with remarkable results. It is, of course, recognized that it is but a part of a general laxness of abdominal organs, though usually the first to give rise to symptoms. The voice of the surgeon is still in favour of operation.

Here, of course, we should discuss syphilis and its spirochæte, but this has already figured before you on several occasions. It is not, I think, going too far to say that the spirochæte is the cause of this disease—it has been found in all its lesions, in all its stages. It has fulfilled Koch's postulates, except that it has not been grown outside the body, and therefore innoculation experiments are partially vitiated. The position then for the present must remain an expectant one. The experimental work with the organism belongs, perhaps, more to the field of bacteriology than surgery. It is chiefly that of Levaditi and his followers, and Neisser and his clinic—the former with cornea of the rabbit, the latter with the higher apes.

In the work which has been done on the thorax there is nothing extraordinary. Perhaps the most sensational has been the blodness which has marked surgical interference in matters pertaining to the heart and pericardium. The number of wounds of this organ which have now been surgically treated and reported has greatly increased so that suture of the ventricles and pericardium is no longer a startling event. Wounds of the auricles have continued as dangerous as before.

The massage of the heart in connection with asphyxia or heart failure under operation has also been brought more prominently before the surgical world—the three methods being through the diaphragm, without incising this, and by incising this, and thirdly, through the chest

wall. Success is by no means the rule, but its advocates claim that in a number of cases it has proved of value—in fact, life-saving.

Pericardial effusions—serous in some cases and purulent in others—demand surgical interference; the trend of the year has been in all large effusions, purulent or otherwise, to open the pericardium by thoracotomy rather than trust to paracentesis. Results are, however, questionable. (Sjovall of Sweden).

Pneumothorax, its prevention and cause, have occupied the minds of surgeons in this region to no small extent. In Germany the use of Sauerbruch's kastchen has become more general, the old strife between those advocating a lowered pressure over the wound and those a higher pressure over the head is still going on. The idea—though generally known—has not been practised outside Germany. It may be remembered that Mikulicz's idea was that by its means a resection of the œsophagus might be rendered possible. This was found not to be the case, and probably our present methods of avoiding pneumothorax are sufficient to avoid the use of a cumbrous and expensive apparatus. Indeed, English surgeons, as well as others, have called attention to the fact of how, in many instances, pneumothorax does not occur after wounds of the thoracic wall, and claim that besides the question of air pressure there is a distinct cohesion between both pleural surfaces, which requires some force to overcome. Operations then which deal solely with the pleura, the lung being in situ, are simple enough, and it is only when we seek to retract the lung that pneumothorax is unavoidable.

A number of cases of wound of the thoracic duct are reported, some where simple packing has resulted in recovery; others where in space of three weeks death occurs, are to be found.

A long article dealing with the thymus and its disases, more especially hypertrophy and operative measures for its relief was read by Reber before the Surgical Congress in Berlin last April. He finds, among other important facts, the following: The physiology and pathology are still extremely dark. The thymus may grow up to twenty years; it, of course, as a rule, ceases long before this. Its size is of importance for the individual, but of equal importance is its shape—a large, flattened thymus causes less trouble than a short, thick one, which may press upon the trachea. The chief symptoms of enlargement is dyspnœa, that is generally inspiratory in character, but may also affect expiration, in addition a welling up in episternal notch is frequently seen. The enlargement may or may not be associated with general lymph hyperplasia, but this is not as common as formerly thought. The so-called status lymphaticus is too vague an entity

for him to altogether believe in. When dyspnœa is extreme he has operated in several instances, generally by suprasternal incision and removal of the gland piecemeal. It is possible also to remove the sternum in part and operate.

During the year Kocher published his 3rd thousand of goitre cases. Some facts relating to these are of interest, though, perhaps, not strictly speaking, belonging to the thorax. It comprises the operations of five years. The growths were 36 malignant, 3 deaths; inflammatory 8, no death; Basedow 51, 1 death; ordinary goitre (cystic adenoma) 904, 3 deaths; 7 deaths in all. Stay in hospital, 10 days. No infection occured which at all endangered the patient's life; this is due to the simple wash up—alcohol and water, no antiseptics being used on the wounds, and accurate ligature of all bleeding points. He still adheres to local anæsthesia when this is at all possible. The promiscuous use of thyroid extract has done more harm than good. His low mortality he ascribes to careful attention paid to the heart and blood pressure; he will not operate on late cases of exophthalmic goitre, but says that to expect results, one must operate early.

Before the British Medical Association at Toronto, MacCallum of Hopkins, read a paper on parathyroids in man. From these cases taken from the surgical department of Johns Hopkins Hospital, tetany following operation would seem absolutely dependent on the removal of these bodies.

Kausch in the *Medicinische Klinik*, '06, has a paper dealing with foreign bodies of the trachea and œsophagus. By means of the œsophagraphy perfected by Mikulicz, he was enabled in many instances to remove foreign bodies, such as coins, false teeth, etc., from these passages without a cutting operation.

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Conkling.—(Massage of heart), N. Y. Med. Jour. ,
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Wm. B. Coley. "Sarcoma of the Long Bones." *Annals of Surgery*, March, 1907.

Based on a study of 71 cases of sarcoma which came under his personal observation, Coley makes a plea for a method of treatment, which, in his opinion, holds out more hope than the present operative one. In this series of 71, 34 were periosteal and 22 central in origin; 15 were uncertain. The femur was affected 36 times; the tibia 13; humerus, 13; radius, 3; ulna, 2; fibula, 2; metacarpal, 1; metatarsal, 1. Twenty cases were treated by amputation, 16 by disarticulation—other methods were practiced in 6 cases, and no operation performed in 29. This distribution and these methods correspond closely with figures from other clinics save that, in dealing with the myelogenous type, the German school following the example of the late von Mikulicz, have practiced resection of these bones with equally good results. The prognosis is of the worst. O. Kocher collected from the literature up to 1905 but 57 cases which had showed no recurrence within three years or longer. Of these 30 were of the myelogenous type, 15 of the periosteal and the remainder uncertain. Butlin in 114 cases of sarcoma of the femur found 68 periosteal in origin; of these but one lived beyond three years, and 46 myelogenous, of whom 5 were alive three years after removal, figures which serve to show, not only the malignancy of the disease, but the extraordinary malignancy of the periosteal type. To quote Butlin, "We cannot but form the opinion that the disease is horribly and rapidly fatal and the prospects of complete cure singularly small." By use of his toxines of B. prodigiosus and S. erysipelatis, with or without operative measures, Coley is able to report 10 cases well three years and after. This would give a recovery of about 14 per cent., which is somewhat better than the 9 per cent. of von Bergmann's, and 13 per cent. of König's series reported by Nassé and Rheinhardt. So struck is Coley with the inefficiency of operative interference, and so confident is he that his toxines can render useful service that he does not hesitate to advise a trial of the toxines in these bone tumours for three or four weeks. Should no decrease in size or improvement be perceptible by the end of this period, operate. The loss of time is not sufficient to do much harm; on the contrary, he is now able to report 12 cases which have been saved operation by this method.

Hoffa. "Results of Tendon Transplantation." *v. Langenbeck's Archiv. Bd.* LXXXI. Hft., I.

Hoffa, from 200 cases of tendon transplantation, has been able to follow 173 to a point where results warrant publication. Without going into detail, suffice it to give his most pronounced conclusions.

On the whole the results following this work in the paralysis and paresis following anterior poliomyelitis of infants have not been good, due, says Hoffa, to not treating these cases first and getting rid of contraction and other deformities before attempting the tendon suture. Further, one must pick out his muscles with care; the functional capacity is not always rendered sufficiently clear by the electric reaction, we must also depend on the appearance of the muscle at the time of operation—the normal dark red, the paralyzed white, the paretic pinkish. Asepsis and proper arrest of hæmorrhage are, of course, a necessity. Don't over shorten; don't put the plaster on too tight; don't split the tendons too finely, and follow your operative results with massage and electricity are some of the points brought forward. In the spastic diplegia of infants over shortening is very probable, the conversion of a pes equins to the still worse condition of pes calcaneus has occurred again and again. In progressive muscular atrophy surgical interference is justifiable, inasmuch as the disease is but slowly progressive, and he has seen many cases of temporary improvement after operation.

A detail of results in pes equinus, club-foot, flat foot, pes calcaneus, quadriceps and deltoid paralysis is presented.

A. S. Barker, F.R.C.S., of University College Hospital, London. "A Report on Clinical Experience with Spinal Analgesia."

"There seems but little doubt it has rendered possible life-saving operations, which would have been almost certainly fatal under general anæsthesia." Such, briefly expressed, is Barker's conclusion, though he refrains from any more definite expression as to the future of this form of anæsthesia. Barker used stovaine throughout, at first in sodium chloride solution (Chaput's), later Bier's, and finally a glucose solution of his own devising. In 11 out of the 100 he failed, but it is noteworthy that these all occurred in the first 50 cases and are, thinks Barker, due, to not introducing the solution into the canal, at least in toto. Headache, vomiting, were occasionally noticed, never severe, and it was remarkable that when patients had had experience of general anæsthesia and lumbar puncture they, with one partial exception, preferred the latter. The injection was made in the ordinary way, in 3rd or 4th lumbar space—on the average 5 c.c. of the solution were injected; in 5 to 10 minutes analgesia extending as a rule as high as ensiform cartilage occurred and lasted from 23 minutes to 2 hours, the average being 50-70 minutes. The first symptom, as a rule, was formication in feet, followed by loss of sensation in the perineum gradually extending to legs, thighs and abdomen. All operations were at a lower

level than umbilicus, but involved many abdominal sections, no mortality as a result of the procedure occurred. The writer, whose opinion on any question of local anæsthesia must be received with respect, calls attention to the fact that stovaine has a marked hæmolytic effect, in spite of being made up in what are apparently isotonic solutions. He himself prefers an isotonic glucose solution with a high specific gravity. By means of this high specific gravity he considers that he has more control over the solution once inside the spinal canal, *e.g.*, by tilting up the pelvis this fluid will flow towards the head, reaching the high dorsal nerves, and, consequently, a high level analgesia. His experiments at once ingenious and simple, bear him out. The article is one of the best in English on this subject, which at present is such a live issue on the continent, that we have yet met with.

Geo. Walker, Associate in Surgery, Johns Hopkins Hospital. "Tuberculosis of the Bladder." *Annals of Surgery,* February, March and April, 1907.

Walker's earlier article on tuberculosis of the kidney is ably amplified by the present study of the same disease in its relation to the urinary bladder. The paper which is a long one, extending over three numbers of the journal in which it appears is based on a study of 413 cases collected from the literature; 34 cases from Dr. Halstead's wards and practice; material from the pathological laboratories of many clinics and on inoculation experiments by the author on the Guinea pig and rabbit.

Beginning with the history which commences with the studies of Ambroise Paré, it is interesting to note that as early as 1859 Wilks, and later, Gebbard, concluded that primary tuberculosis of the bladder did not exist, a view which the present article does much to substantiate; thus, out of 2,390 autopsies at the Johns Hopkins, 710 cases of tuberculosis occurred, 160 of which affected the genito-urinary organs: of these 160 the bladder was affected 22 times, but always secondary to disease elsewhere, generally the kidneys. Even more striking are the figures of Saxtorph, who, in 10,016 autopsies, where the genito-urinary system was affected 547 times, found the bladder affected in 53 cases in only one of which could he, with reasonable certainty, consider the disease primary.

In reference to the association of vesical tuberculosis with the remainder of the genito-urinary tract, the following figures are of interest: Out of 411 cases of genito-urinary tuberculosis 266 were secondary to disease elsewhere, generally the lungs, and 145 primary. (It is but

right to remark here that these figures are open to question, as are all tubercular records, in view of more recent and more careful work in the search for the primary focus). Of these 145 cases, primary disease of the kidney occurred 84 times; of the epididymis, 80; of the prostate, 6; of the tubes, 6; of the seminal vesicles, 2, and of the uterus, once.

Primary tuberculosis of the bladder is practically unknown pathologically, though frequently diagnosed clinically. This is substantiated by experimental work of the author and by Roosing, Hansen, Baumgarten, etc., who without primary injury to the bladder, were unable to set up a tubercular process.

Without going into the minutiæ of pathological histology, the disease starts as minute tubercles of the mucosa, generally extending to severe infiltration, ulceration and widespread destruction of the whole bladder wall. The infection is always at an earlier or later stage complicated by a secondary infection, which, in the author's opinion, is due in the great majority of cases to the use of the catheter, it being almost impossible to avoid a contamination of these bladders. Among the secondary organisms found, streptococcus, staphylococcus, B. coli., the gonococcus and B. proteus vulgaris are the most common. All aggravate the condition, with the possible exception of the last named, which, in some instances at least, seems to ameliorate the condition. With regard to the situation, the trigone and base are most commonly affected, thus, out of 83 cases, the trigone, the ureteral openings, the base and posterior wall were the seat of the lesion in 67 instances, while the remaining 16 were found to affect the neck, anterior wall and vertex (not ureteral openings).

Infection is possible, by the blood and lymph, though where miliary tubercles occur it is impossible to say that the bacilli have not descended the ureter and come to rest in the bladder, indeed, as the author points out it is not necessary that the kidney be affected in these cases, as there are now several instances on record where a healthy kidney has secreted tubercle bacilli (apparently from a tubercular lung) and showed post mortem no evidence of disease. The second route of infection is thus a descending infection from the kidney, and, judging from the author's figures, we are inclined to believe this the commonest method. Thirdly, infection is possible and does not occur secondary to disease of prostate, epididymis and seminal vesicles.

Out of 438 cases, 285 were males and 153 females. The disease was present in one case of 2 years of age, in another of 97 years; it was commonest between 20 and 30.

From a clinical standpoint the disease is an unsatisfactory one—the urine may be acid or alkaline, depending, as a rule, on the secondary infection. The presence of blood is of importance, and hæmaturia is often the first sign—in one case of Caspar's this existed for five years without other symptoms. Absolute diagnosis can only be made by the use of the cystoscope, substantiated by finding the bacilli in the urine, a fact which the author assures us is possible in every case. Fever is a late symptom. The disease is a chronic one—some cases give a history of cystitis for 5 to 10 years. When first seen, on the average, the disease was present two years before the patients presented themselves, and the average duration after their first visit was three years. The prognosis is thus extremely bad, though undoubted cases of recovery have occurred. Drugs and local applications are useless—operative measures are limited to a removal of the primary focus, *e.g.*, kidney or testicle, which in many cases has favourable influence, and to palliative measures such as drainage. The use of tuberculin is to be decried, except when used after the method of Wright. Hygienic measures, fresh air, rest, etc., offer the best prospects.

Prof. M. Jordan, of Heidelberg. "The Internal Treatment of Appendicitis and the Indications for Surgical Interference." *Deutsche Med. Woch.*, March 21st, 1907.

In an early number of the *Deutsche Med. Wochenschrift* of this year, Prof. Pfister, of Heidelberg, advised a more extensive trial of the expectant treatment in appendicitis, bringing forward certain 70 cases from his clinic to support his view. This, in spite of the steady trend of German surgical opinion towards early operation, which has filled the literature since 1899. Jordan is one of the first to attack a heresy which was orthodox ten years ago.

Probably 90 per cent. of cases of appendicitis would get well without operation, and this quite apart from the use of ice and opium as advocated, but at least 40 per cent. to 80 per cent., or even 90 per cent. of the cases will develop subsequent attacks or will continue to suffer from peritoneal and intestinal pain dependent on the appendix. Internal medicine cannot cure appendicitis, it can only withhold baneful influences by rest, abstinence from food—and denying purgatives—possibly by use of opium. How then can we save this 10 per cent. and better the condition of the others?

Could we diagnose accurately the condition of the appendix, we would be in a position to know where to operate and when to wait. This accurate knowledge is, except within wide limits, impossible, as any one who has operated much will know.

Should we, on the other hand, operate in every case as soon as diagnosed, we would undoubtedly lower the mortality possible to 0 per cent. This, for various tabulated reasons, is also impossible. Our course must therefore be to individualize. As is common with the German school, he divides appendicitis into acute and chronic, and the former into the early, intermediate and late stages.

In the acute stage the surgeons position should be a waiting one—knife in hand. Paying due regard to patient's general condition in relation to local signs, especially resistance of muscles, pulse (especially with low temperature), pain, vomiting, temperature, more especially with a chill or when sub-normal, tenderness, etc., he would watch for improvement. In the mild attacks this should occur within twenty-four hours; in the severe, symptoms and signs are worse inside of thirty-six hours. As everything depends on recognition of these facts, *don't give opium.*

In the acute stage the surgeon's position should be a waiting one—between the third and sixth day, either a general peritonitis or abscess is likely present and here, too, we must treat each case on its merits. Where the condition is apparently hopeless he would abstain from operation, and he has seen some cases get better. Where the patient's condition is good he would interfere. In the late stage, cases seven days old or older, little or nothing can be done.

He concludes then: (*a*) In even the mildest cases think of operation as a possibility; (*b*) the practitioner should therefore pay special attention to the severity of the case which (*c*) depends on the most careful observation of symptoms, therefore, don't use opium; (*d*) mild cases under constant observation can be allowed to go on; (*e*) but cases which are not improved by second day should be operated upon; (*f*) treatment by medicine is too great a hazard; (*g*) an interval operation is indicated, after one severe attack; after two or three mild attacks; after one mild attack depending on patient's circumstances; when chronic trouble persists.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The fifteenth annual meeting of the Society was held on Friday evening, 3rd May, 1907, Dr. F. G. Finley, President, in the Chair.

CEREBRAL HÆMORRHAGE SIMULATING MENINGITIS.

W. A. Molson, M.D., and A. H. Gordon, M.D.—Dr. Gordon read the report of this case, which appears on page 416 of this number of the Journal.

F. G. Finley, M.D.—The condition of cerebral aneurysm is so rare that it is not surprising that this condition was unrecognized during life. On looking back there are several points which might have led to a correct diagnosis had due weight been attached to them. The recurring apoplectic attacks with blood in the cerebro-spinal fluid were quite characteristic of hæmorrhage, and with double optic neuritis some form of tumour was the most probable explanation. The marked grade of arterio-sclerosis occurring in a negro was suggestive of aneurysm, as it is well recognized that this malady is more frequently found in the coloured than in the white race. I would like to ask if there was a history of syphilis, which is such a frequent precursor of aneurysm.

A. H. Gordon, M.D.—I may say that the specific disease was searched for while the patient was alive, but no scar in the usual situation was discovered; however, at autopsy the report of the pathologist shows that there was a suspicion of a scar behind the corona.

GENERAL PERITONITIS.

E. W. Archibald, M.D., read the paper of the evening, taking up, first, the definition of the term peritonitis; second, the bacteriology and its relation to prognosis; third, treatment, especially the moot points of lavage and drainage, and fourth, the results.

Dr. Lapthorn Smith.—I was very much interested in the part of the paper relating to the Fowler or semi-erect posture, after abdominal sections for appendicitis and bad pus tube cases, where there is extensive peritonitis of the lower part of the abdominal cavity; it prevents the infection from being spread to the upper part of the abdominal cavity where it is much more dangerous. My experience with the Fowler position has led me to believe that its introduction marks an epoch in the reduction of mortality, just as the Trendelenburg posture, during the operation, has done. In one of my cases I am sure the patient would have died without it, as there had been unavoidable and extensive injury to the intestine which was so softened by infiltration that it would hardly hold the stitches. I was almost sure that there would be a fæcal fistula, as well as a great deal of oozing of blood and serum, so I introduced a rubber tube as large as my thumb, with many holes along its length, extending from the lower end of the incision, down to Douglas' cul de sac and out of the vagina. As the patient was semi-erect everything drained away, including fæces, for several days, with the result that she had a remarkable convalescence almost free from temperature, and got up better than many a mild case. Of course it does away with salt solution in the abdomen, but I am coming to the

conclusion that this is not often necessary, and that the dryer you leave the peritoneal cavity the better. I have created an axiom that "It is unlucky to see the intestines at all during a laparotomy, and still more, to handle or touch them," and if the nurses have had the patient in hospital a couple of days, the bowels can be so emptied that they disappear out of sight the moment the peritoneum is incised. Although I have no experience with pelvic drainage in men, I think it would be worth the general surgeon's while to employ this method by passing the tube out through the anus or by piercing the perineum.

F. J. Shepherd, M.D.—With regard to the term "general peritonitis," I would object to that and prefer to call it "progressive peritonitis," for one does not know how extensive the condition is; as for rigidity being a sign I do not believe it can be depended upon to diagnose general peritonitis. I do not think it is advisable to hunt about to see how much peritonitis there is, but rather to treat the condition as one that may progress. The dose of the poison, the extent of the peritonitis and the virulence of the infection as well as the personal equation are all important bearings in many of these cases. I have operated on cases in the interval where the patient has died of peritonitis with septic infection chiefly because those patients had no resisting power. This is where Wright's method comes into vogue: it tests the resistance of the patient to streptococcus, and if low, the toxine may be injected to bring it up to the required standard. I have given up drainage in general peritonitis where there is no local infection such as gangrene or local abscess; where one can turn in the stump of the appendix and everything is clean, then, as a rule, I do not drain. Where there is a lot of gangrenous tissue one must drain or have an abscess to open later.

F. M. Fry, M.D.—I was hoping Dr. Archibald would discuss purulent peritonitis without visible perforation. It has been accepted, I believe, that in appendicitis germs pass through the intestinal wall to the peritoneal cavity without there being any macroscopic perforation. I have seen infants at the Foundling Hospital with typical signs of peritonitis following chronic intestinal catarrh, and these cases at autopsy show universal purulent peritonitis without visible perforation. While one cannot exclude infection through the general circulation, yet the passage of germs through the diseased bowel must be thought of.

F. R. England, M.D.—A paper read by Mr. Bond at the meeting of the British Medical Association in Toronto, on this same subject brought out some very interesting facts. And certainly it does seem that the views of surgeons generally have lately undergone great change

regarding the treatment of so-called general septic peritonitis. In the discussion which followed Mr. Bond's paper the statement was made by Dr. J. B. Murphy, that until five years ago statistics (Dudgeon & Sargeant) showed a mortality of from 83 to 85 per cent. in cases of general septic peritonitis, but that during the past three years, since adopting a change in the method of treatment, his mortality, in a series of thirty-five cases of the same kind, had been only three per cent. Mr. Bond in his paper referred to the upper dome of the abdomen or sub-diaphragmatic area as being the part of the peritoneal cavity where absorption of bacterial poisons took place most rapidly, and that when this area became infected the case was most likely to prove fatal. Mr. Bond was a strong advocate of the Fowler position, maintaining that the toxines gravitated to the lowest part of the abdominal cavity where absorption occurred more slowly than it did in the upper zone, allowing time for the patient's resistance to overcome the poisonous toxines as they were absorbed.

Since Mr. Bond's paper I have had an opportunity of treating three cases of diffused or so-called general peritonitis. The treatment followed consisted of open irrigation, pelvic drainage for two or three days, Fowler's position and the slow introduction of normal saline solution into the rectum. All three cases made rapid and perfect recoveries, and this notwithstanding the fact that in two of the cases the bacteriological report showed streptococci in pure culture.

Murphy holds that the variety of organism makes very little difference in influencing the prognosis and that any organism may be virulent at times. He places more importance upon the personal factor of the resistance of the patient and the evidences of toxicity present.

Geo. Fisk, M.D.—In connection with the Fowler position I may say that it certainly does aid the circulation; we all know that in depressing heart conditions with hypostatic congestion it helps to have the patient frequently change his position and to assume the semi-upright attitude. With regard to drainage I must say that I have used it in all bad cases of progressive or general peritonitis, and as my results have been so far very good I have hesitated to close in these cases without drainage. Irrigation too I have used.

E. W. Archibald, M.D.—With regard to the diagnosis of general peritonitis I can hardly agree with Dr. Garrow that the clinical findings of so-called general peritonitis are sufficient in all cases to give an absolute anatomico-pathological diagnosis. While the experienced clinician will not very often make a mistake in this direction, I am sure that he is sometimes exposed to such errors where, as with Murphy,

one makes only a right-sided incision and a small one at that, it is practically impossible to see the left side or to determine whether pus is present there or not. And it sometimes happens when one makes two lateral incisions, that when there are clinical signs of pus on both sides, no pus is found on the left; *per contra*, clinical signs may be wanting when there is pus. Hitherto, upon a diagnosis of widespread bilateral peritonitis I have made two lateral incisions, and, if necessary, a third one above the umbilicus, so as to wash thoroughly from above downwards. As regards the cases of peritonitis without discoverable lesion I have had no experience with this class; I think we are reduced to mere theory in these cases; they are either hæmatogenous, or are due to an insignificant trauma. As to the Fowler position after operation, to a modified degree, yet not so much to favour drainage as to give comfort to the patient. It certainly assists circulation and respiration by relieving the diaphragm, and contributes just so much to his well-being and to his recovery; but for drainage I do not think it is of very material assistance. With regard to the Fowler position I would point out that in experiments the upward current of saline and of particles of carmine may be slowed, but it still goes on. There is a current in the upper direction against gravity. Experimentally, streptococci form an exception to the general rule with regard to lavage. in this infection thorough and early lavage apparently does good, but not, if we are to believe the laboratory men, with the bacillus coli. I would say, however, that one must use caution in making a direct application of laboratory results to the human. The B. coli infection in animals, as experimentallly produced, is nearly always by a massive dose, with the production of acute toxæmia, without the slow later changes, which one sees in man, due to peritoneal reaction, exudate, pus, abscesses, and adhesions. The effect of lavage in such acute toxæmias may be very different from that seen in the slower process in man.

ELECTRICAL EXAMINATION AND TREATMENT OF OPTIC NEURITIS AND ATROPHY.

D. A. Shirres, M.D., read this paper.

G. W. Mathewson, M.D.—These cases of optic atrophy have always formed a sad chapter in ocular therapeutics. The commonest mode of treatment has been the hypodermic injection of strychnine, which generally produces temporary improvement. Of late years Longworth and Würdeman have each published a series of cases treated by electricity, in some of which improvement was marked. In one of Longworth's cases vision improved from 6-36ths to 6-12ths. The most important point is whether such improvement is permanent.

C. K. Russel, M.D.—These are extremely interesting cases, but how such improvement in vision occurred is hard to understand. In peripheral nerve paralysis it is very doubtful if the galvanic current acts on the nerve itself. It is much more likely that it acts only on the muscles, keeping them in good condition until the nerve regenerates. Here in the optic nerve we are not dealing with a peripheral nerve, but with a prolongation of the brain substance and we know that regeneration of brain substance, once destroyed, does not occur. Unless the actual acuity of vision was recorded both before and after treatment these cases are of little value. In any case one must allow for that functional element which is so often associated with chronic nervous disorders and which would allow a certain improvement under treatment.

Geo. Fisk, M.D.—I should like to learn a little more of the details of the technique in giving the electricity. This report has been of much interest to me; I am a great believer in electricity and feel that we will learn more about it by being optimistic and persevering in the treatment of obstinate cases.

W. Gilman Thompson records a series of experiments to ascertain whether the local application of heat by poultices and cold by ice bags has any appreciable effect on the deep internal temperature of the body. He concludes that the topical application of thermotherapy is of little value in controlling deep-seated visceral hæmorrhages, congestions or inflammations. The ordinary means of applying heat and cold do not affect the temperature of structures lying beneath the skin to any appreciable extent, so long as the peripheral circulation remains active. But thermotherapy applied to the peripheral structures of the body is of very great value, especially when applied with pressure, as in alternating hot and cold douches. The combination with mechanical shock is of great value in stimulation of peripheral nerves.—*Medical Record,* April 13, 1907.

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EXCISION OF THE CAECUM FOR CARCINOMA, WITH A REPORT OF FIVE CASES.

BY

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This procedure was first resorted to with success about twenty years ago, but until the last eight or ten years the number of operations performed were not numerous. The cæcum is a part of the alimentary canal which can be easily reached and, for that reason, can be removed with corresponding ease by the surgeon of the present day.

The reported cases, according to a list recently published by Drs. Cumston and Vandeever, in the "Annual of Surgery," do not as yet reach one hundred.

The surgical importance of this disease and its complete extirpation is attracting the attention of surgeons, not only for the excellent results which follow complete extirpation, but also in view of the attention that has been drawn to the tubercular and other non-malignant lesions which too closely simulate carcinoma, and which, by virtue of their clearing up after short circuiting operations without complete removal, have done so much to obscure the prognosis of life in these cases.

Moynihan has directed attention to these non-malignant cases, more particularly with regard to those cases of supposed carcinoma of the rectum which have entirely cleared up after performance of inguinal colostomy. It has been the custom to consider these ulcerated growths of the large gut, particularly in the rectum, as being in all cases of syphilitic nature, but in the light of recent minute pathological investigations, it is only too evident that a much more complex explanation will have to be put forward. Apart from the tubercular local lesions of the large gut and those sclerosing conditions which follow long continued ulceration of the colon from dysentery or some such cause, it seems to be an established fact that chronic ulcerative non-specific lesions

can and do take place in much the same way as in the stomach. Moreover, just as it is a matter of exceeding difficulty to determine, in a great number of cases, without the aid of the microscope, whether a given mass in the region of the pyloric end of the stomach and the lesser curvature is malignant or not, so is it with the large gut.

These five cases, although not including any of these non-malignant conditions, illustrate two most important features in the diagnosis of cancer of the cæcum. One case, that of a man, A. K., aged 42, shows how difficult it is to differentiate between an abscess in the region of the cæcum, due to the appendix, with the concomitant thickening of the cæcal wall, and an abscess in the region of the cæcum due to carcinoma, with perforation of the wall of the viscus or with bacterial transudation which culminates in abscess formation. This man, had been operated upon for appendicitis and came under my charge some months later with a fœcal fistula which had resisted all attempts at closure. On making an abdominal section I found that there was a hard indurated mass in the posterior aspect of the cæcum, and, suspecting carcinoma, I excised the cæcum and united the ends of the ileum and ascending colon by a lateral anastomosis. The patient is now alive and well, after a lapse of five years. Microscopical examination showed this growth to be a columnar carcinoma.

The other interesting case is that of a man, C. J., aged 47, who came to me with symptoms of commencing obstruction in the region of the cæcum and the formation of a tumour. Abdominal section discovered a growth of the cæcum and a number of deposits of what appeared to be malignant growths in the great omentum. These latter were smooth ovoid more or less discrete masses, varying in size from a pea to a walnut. I excised the cæcum and united the colon and ileum by means of a lateral anastomosis, and then removed as much of the omentum with the growths as was feasible. By reason of these secondary growths and the macroscopical appearances of the excised cæcum I gave a bad prognosis for the future. This man, nevertheless, is now alive and well six years after the operation, with no evidence whatever of recurrence. Careful microscopical examination of the growth in the cæcum and the nodules in the omentum reveals the nature of these to be columnar carcinoma.

The following is a short history of four cases which have been under my care:—

Mrs. S.—Operated January 31, 1899. Discharged March 3, 1899. Age 52 years. Married; had 8 eight children. Housewife. Very emaciated.

Present illness:—About 12 months ago complained of griping pains across umbilicus, which came on three or four times a day, especially when she exerted herself. They grew steadily worse and were accompanied by retching and vomiting, especially in the morning.

The pain ceased at night.

Had no appeatite and was steadily losing weight. For several months she was treated for indigestion.

In November, 1898, she accidently discovered a lump in her right side; this was diagnosed as a floating kidney and she was given a belt, but could not wear it. For eight months before she consulted me she had kept quiet on a lounge because as soon as she began to walk the pain returned.

Her bowels had always been regular and nothing abnormal had ever been noticed in the stools. Passed water frequently and in large quantities.

Physical Examination:—A large mass, kidney-shaped but twice the size of the kidney, could be felt by deep pressure, distinct and above this lower mass. This point cleared up all doubt as to the diagnosis.

When the peritoneal cavity was opened, it was found to be a carcinoma of the cæcum, the great mobility being due to the presence of a well-marked meso-cæcum.

Excision of the cæcum was performed, and also a few enlarged glands in the mesentery removed. The Murphy's Button was passed on the 8th day. About a year later I saw her and she was then in very good health, but I learned from her relatives that in October, 1900, she died in the Eastern States (exactly 21 months after the operation) of "Cancer of the Blood." A post mortem was made by the attending physician, who said there was no return of the growth in the intestine.

A. K.:—Date of operation, 15th January, 1900. Discharged, March 5th, 1900. Aged 42. Single; farmer.

Present illness:—Three years ago he was seized with a sudden attack of pain and vomiting, which recurred for a day and sometimes two days; bowels were very constipated on these occasions. These attacks came on every 3 or 4 weeks for the first year; they were then followed by diarrhœa of a dysenteric character, blood, mucus and pus often being found in the stools. No history of any previous illness. He was gradually losing weight and always disinclined for work, although previously he had been a hard worker. The colicky pain across the lower part of the abdomen was so severe and frequent that his condition was diagnosed as appendicitis and the appendix removed by the attending

practitioner in January, 1898. Following the operation a fistula formed at the upper part of the operation wound.

In January, 1899, and again 3 months later, an attempt was made by a well-known surgeon to close the fistula, but it remained closed for only a short period after each operation—the last time for two months.

In January, 1900, the patient first consulted me with a fistula in his right side. Over the region of the cæcum a somewhat ill-defined mass could be felt, which I thought might be some chronic inflamatory thickening. By dissecting up the skin around the circumference of the fistula, then roughly sewing over the two sides with a continuous suture, the fistula was then temporarily closed.

I now made an incision through the abdominal wall into the peritoneal cavity above the limit of the former incision. The intestine, together with the closed fistula, was freed from the abdominal wall.

A thickened, hardened mass was felt in the cæcum, and at its junction with the ascending colon a strictured portion could be seen and felt, evidently the result of a cicatrizing ulcer. It was at this point the fistula formed.

The cæcum, together with the portion of the colon, was removed.

The progress of the case was uneventful and the patient allowed to get up in four weeks. He returned to his former employment and is still enjoying the best of health.

C. J.—Admitted, Nov. 27, 1900. Discharged, January 7th, 1901. Age 27. Single. Farmer and farm-hand. Present illness:—Began eight months ago with sharp pain and feeling of soreness in right side. Gradually losing flesh; felt tired, heavy, and had no desire to work. Had night-sweats, and considerable pain at night, for which he regularly took "pain-killer."

The pain, as time went on, became of a more griping character; in the course of a walk of half a mile he would fall down three or four times. This griping pain became more and more frequent, so that he could not follow his occupation. His bowels were irregular; usually had no difficulty in keeping them open, and would then have the pain more frequently, and would be bloated; no diarrhœa; never vomited. Appetite good. Four months before he consulted me, he first felt the lump when one day feeling his side for pain.

His family history was of no value, except for the fact that one brother, aged 27, died of "bowel trouble" and "tape-worm."

Physical Examination:—The abdomen was distended and rigid, but over the right iliac region an ill-defined mass the size of the closed fist could be felt; it was resonant on percussion, tender on pressure, and appeared to be immovable.

The case was sent to me as a case of chronic appendicitis, which I at first also thought it to be.

He was kept under observation, in bed for 14 days, upon a liquid diet and having hot fomentations applied, but as the swelling in the side instead of decreasing gradually increased and the griping pains became more severe, and the temperature remained normal, we then suspected that it might be a growth.

An operation was decided upon, and upon opening the peritoneal cavity through an incision over the swelling I found it to be a growth in cæcum. The growth was well defined; the colon was empty, and the small intestine greatly distended. From this it was evident that the growth was producing obstruction. I then decided to remove it.

After this was completed, I further examined the peritoneal cavity and found masses of growth in the omentum, and scattered over the peritoneal cavity, and in the appendices epiploicæ I ligatured off a portion of the omentum containing a mass of the growth.

Within four weeks the patient was up and walking about. Nine months later he called to see me; he had gained 15 lbs. At the present time he is well and hearty and driving a grocery delivery waggon from 7 a.m. to 6 p. m. There is no sign of any abdominal tumour.

Gætano Sasso:—Operation, January 15th, 1901. Died July 15th, 1901. Aged 61. Married. Labourer. Prematurely old.

Present illness:—For six months he had suffered griping pain in the right side, the slightest effort at work bringing on the pain, and losing weight steadily.

Had noticed a lump in his right side for three months, gradually getting harder and larger. Bowels very troublesome—sometimes constipated for nearly a week, but for the last six weeks had persistent diarrhœa. Vomited occasionally; appetite poor. Temperature 97 to 98.6.

Physical examination:—As the patient was emaciated and the abdominal wall relaxed, a hard mass, kidney-shaped, freely movable in its lower part, could be felt in the right iliac region and extending up under the ribs, where it appeared to be fixed. No appreciable tenderness on pressure.

The diagnosis in his case lay between a growth of the liver or gall-bladder or of the cæcum.

On opening the peritoneal cavity I found the cæcum contained a hard growth, which was adherent above to the liver. The ileum was clamped with two pairs of forceps and the intestine divided between them. By this means the cæcum could be readily manipulated, while I removed with the actual cautery the portion of the liver adherent to the growth.

This rendered the whole mass free, so that I was able to remove it in the usual manner.

For ten days some fæcal-stained fluid escaped at the site of the wound, after which time the fistula closed.

After the wound had healed he was wheeled out daily in the hospital grounds in a chair, but gradually grew weaker and weaker and died exactly one month from the date of the operation.

A. G.—Operated Nov 3rd, 1903. Discharged Dec. 1st, 1903. Age 42. Married. Fisherman by occupation.

Present illness:—About 16 months ago the patient complained of pain in the pit of the stomach, not aggravated, however, by food, in fact relieved at times after meals. This pain was not accompanied by flatulence or vomiting.

In January, 1903, about 5 months later, the pain increased, and one day a large black tarry motion was passed and for the following weeks the patient felt very weak and ill. Then came colicky pains in the lower abdomen, accompanied by the rumbling of wind and an obstinate degree of constipation.

In June, 1903, another black tarry motion was passed and the general symptoms increased, pain being now referred to the right iliac fossa and the right of the umbilicus.

Patient was losing weight rapidly at this time.

Physical examination:—When I examined him I found a large hard tender lump in the region of the right iliac fossa. This was irregular in outline and the right kidney could be palpated on deep pressure in its normal situation above it.

I decided to operate at once and found the region of the cæcum was occupied by a large, hard, indurated mass. The small intestine above this growth was dilated and hypertrophied, the ascending colon was collapsed.

Resection of the cæcum was performed and lateral implantation of the ileum into the ascending colon carried out by means of a Murphy's Button.

I put a gauze drain down to the anastomosis, which was removed in 4 days. The patient made an uninterrupted recovery and is now, 3½ years later, alive and in perfect health.

The history seems to have been of no value in any of these cases.

The symptoms that were present in all the cases were griping pains. This is what we would expect as soon as the slightest obstruction was produced. The griping pains in some of the cases came on only after exertion and were so severe that they simulated appendicular colic. Loss

of weight was always marked; an irregular condition of the bowels, constipation and diarrhœa. There is no one symptom characteristic of disease of the cæcum; but when these symptoms occur, and after a physical examination a mass is found in the right iliac region, the diagnosis of disease of the cæcum is almost conclusive.

Temperature was normal, or alternating subnormal in all the cases.

Physical examination:—The tumours varied in shape and in the degree of mobility.

The diseases most likely to be mistaken for a growth in the cæcum are:

1. Chronic appendicitis, with a large amount of inflammatory thickening. If the previous history is carefully inquired into, it will be usually found that the patient suffered from an acute attack of appendicitis.

2. In another case the diagnosis had to be made between a movable kidney, tumour of the kidney, and cancer of the cæcum, but by being able to feel the lower end of the right kidney this doubt was easily cleared up.

3. In a third case, the diagnosis rested between it and a tumour of the right lobe of the liver and a distended and inflamed gall-bladder. It was impossible to be sure of the diagnosis until the abdomen had been opened, because the cæcal growth was adherent to the under surface of the liver. The growth and the lower edge of the liver could be felt to move with the respiratory movements.

As a routine practice, I always administer a full dose of castor oil to eliminate the possibility of an impacted fœcal mass in the cæcum.

I once saw a case that greatly resembled cancer of the cæcum, but it disappeared after the administration of a dose of castor oil.

Operation:—The only treatment for cancer of the cæcum is total extirpation, and the steps of the operation are well described in text-books on Operative Surgery. The operative technique which I follow differs in some respects from the usual one described.

The abdominal incision is slightly curved from above downwards and inwards, and made nearly midway between the anterior superior spine and the umbilicus. When the peritoneum is reached, the limits of the tumour are carefully examined, to ascertain if it may be removable. The peritoneal cavity is then carefully packed with gauze pads, so as to completely shut it off from the field of the operation; the cæcum is pulled up into the wound, and, to allow of its being pulled out still further, the outer layer of the peritoneum covering the intestine is divided close to the iliac fossa. The cæcum is then stripped up from its iliac attach-

ments. The ileum is clamped with two pairs of forceps one inch apart, and the intestine divided between them. The contents of the intestine are carefully wiped out with pieces of gauze; the forceps attached to the open end of the ileum is packed around with gauze, and pulled out of the way at the lower angle of the wound. The forceps attached to the intestine containing the growth is left attached until the operation is completed; it serves to prevent leakage from the interior of the cæcum.

When the tumour has been rendered free, the mesentery is ligatured off, removing a triangular-shaped piece; the ileo-colic vessels are included in these ligatures. To avoid hemorrhage into the field of the operation, the portion of mesentery removed and attached to the cæcum is clamped with forceps as I go along. Having isolated the portion of the intestine to be removed, I clamp the ascending colon with two pairs of clamp forceps, and divide between them. If there are any enlarged glands they can readily be removed.

After the tumour is taken away, the portions of a Murphy's button are secured in the ends of the divided intestine; the edges of the V-shaped portion of the mesentery are brought together, taking great care to bring the mesentery at its insertion into the intestine on both sides into exact apposition. The two portions of the button are brought together and pressed home, and if necessary a new supporting Lembert suture applied around the button. The intestine is replaced in the iliac fossa and a small drain placed on each side of the point of anastomosis in the intestine and brought up through the centre of the wound. These drains are not removed for four or five days, so that, should any leakage take place, a track shall have time to form.

The edges of the incision are brought together with silk worm gut sutures, passed through all the structures included in the edges of the wound.

In two of the cases a fæcal-stained fluid escaped at the site of the drains; in both cases it lasted for a few days, the wound closing without any interference being necessary.

Several methods have been adopted for performing this operation, but the method I have here briefly described seems to me as simple and as satisfactory as any of them.

The Murphy button is quickly applied, and saves a lot of time that would otherwise be taken up in tedious sewing. The second-sized button is the one I have always used, and find no difficulty in securing it in the end of the colon without decreasing the size of the colon.

When there has been obstruction, the small intestine is distended and the colon collapsed. This may acount for the possibility of being able to apply the button in this situation.

Lateral implantation of the ileum to the colon is the method of all that I should feel more inclined to employ.

The mortality of this operation of excision of the cæcum from the recorded cases is still extremely high. This is accounted for to some extent by the prolonged nature of the operation, together with the shock it produces; the mortality amounts to between 30 and 40 per cent.

This high rate of mortality should be greatly lessened by adopting the more simple and time saving method of operation.

PATHOLOGY.

Nothnagel was the first to draw attention to the incidence of carcinoma of the colon at the flexures, the cæcum, hepatic, splenic, sigmoid flexures and the rectum almost exclusively; he showed, at the same time, that the ascending, transverse and descending colon are very rarely indeed the seat of primary growth. In these five cases of mine the disease seems to have started in all cases in the ileo-cæcal valve, or in its immediate neighbourhood. This, however, is what one would expect if we draw a justifiable analogy between the seat of disease in the cæcum and in the pyloric end of the stomach. The growth then extends chiefly along the posterior attached wall of the cæcum up to the opening of the ascending colon, but exhibits no tendency to progress into or along the wall of the ileum. The infiltration does not appear, in the early stages, to involve the retroperitoneal cellular tissue, but the lymphatic glands are locally involved early in the disease although general lymphatic infection is very late as a rule. In fact, death may and frequently does occur from intestinal obstruction before secondary deposits occur in the liver or elsewhere, and before there is general lymphatic involvement.

The growth in these cases was more hypertrophic than ulcerative, and though the interior of the cæcum was uniformly ulcerated over the growth, there was not much destruction of tissue. This factor accounts for the greater prominence caused by the obstruction than by persistent diarrhœa or passage of blood and mucus per anum. The actual immediate cause of obstruction was well illustrated in three of my cases by a swollen fold of mucous membrane just at or above the ileocæcal valve which almost completely blocked the lumen of the gut at that spot. In four of my five cases the appendix was healthy, neither adherent nor kinked.

The increase in the amount of fat around the cæcum was well marked, as it is in so many cases of carcinoma of the large gut.

The microscopical character of the growth in my cases showed very typical columnar carcinoma, undergoing in all cases more or less

myxomatous or colloid degeneration. There was, in all cases, a great increase in fibrous tissue, in some places very embryonic in type and interspersed among this, strands and columns of columnar cells in all stages of development and degeneration.

I should like to acknowledge my indebtedness to Mr. R. V. Dolbey, M.S., F.R.C.S., for his careful and detailed examination and report of the pathological specimens, both macroscopical and microscopical.

THE LIFE AND WORKS OF SIR ALMROTH EDWARD WRIGHT, WITH ESPECIAL REFERENCE TO OPSONIC TREATMENT AND ITS RESULTS THUS FAR.

BY

G. E. J. LANNIN, M.D., C.M.

"The Briton may traverse the Pole or the Zone,
And boldly claim his right
For he calls such a vast domain his own,
That the sun never sets on his might."

Well may the words of the poet be applied to the world of Medical Science. For more than two hundred years at least there has been a bright succession of men of genius and of eminence in Great Britain who have well sustained the balance against the brilliant and accomplished French savants, and the erudite and profound Germans. Such well known names from England as Sydenham, Bright, Paget, and later Lister; many others from old Scotia, from Edinboro, such as Cullen and John Brown, are all so familiar to us; and from the dear old Emerald Isle in medicine proper we have such names as Stokes, Graves, Churchill, Collis, Tuffnill, and others, and to-day the man upon whom and to whom all eyes have been and are turned in keen expectation is Sir A. E. Wright whom we study to-night, and also to his pupils who have carried the work to the Colonies and throughout the Empire.

Obviously the writing of a portion of a man's biography during his life time is no easy task, especially when he is of so reticent and unassuming a nature as Sir A. E. Wright; and so in his case the collection of material was fraught with no little difficulty, but manifestly, intensely, and pre-eminently interesting to us to-day on account of his modern work in the cure of disease. However, this much we do know.

He was born in Dublin, Ireland; his father was an Irishman and his mother a Swede. He received his early education in Germany; subsequently at Dublin University, where he took his B.A., and was the first gold medallist in modern literature. He afterwards studied law

Given as a paper before the McGill Medical Society, January 31st, 1907.

in London where he carried off the first law prize and studentship at Inns of Court in Jurisprudence and International Law. He also attended the Universities of Leipzig, Strasburg, and Marburg, having won the Medical Travelling Prize. He was Demonstrator of Pathology at Cambridge University in 1887, of Physiology at Sydney University in 1889, Professor of Pathology, the Army Medical School, Netley, 1892-1902. He was a member of the Indian Plague Commission from 1898-1900, and during this visit to India he succeeded in inoculating considerably over 3,000 soldiers against typhoid.

He is a very plain, out-spoken and unassuming man; of rather quiet nature, but of very large and generous heart. He is always a hard worker and is much beloved by the students working in his laboratory with him. He has a very extensive practice in London, so much so that he turns much of it over to his colleagues in order that he may have time for his scientific research work. He lives the simple, plain, frugal life, shuns society completely, and dresses very plainly in the one blue suit, without the pretensions to the long coat and silk hat of his confreres. He devotes his life entirely to his work.

Dr. A. E. Wright was knighted by King Edward VII on May 24th, 1906, and deserved well of the nation as shown by the result of his strenuous efforts to provide a method of prophylactic inoculation against typhoid fever, and for the practical value of his more recent researches on opsonins. The recognition of his life-work made by the Crown only confirms the judgment which has been passed by the profession, not only in Great Britain but abroad, as is shown by the many honors which he has received from foreign learned societies. His distinguished work received the recognition and patronage of Queen Alexandra who was deeply interested in it and ever its constant admirer.

During the South African war he actually had prepared in his own laboratory, at his own expense, the vaccine for vaccinating the whole British force, amounting to over 400,000 doses of vaccine. He is the author of "Antityphoid inoculation," and has made numerous contributions to scientific literature. These are all written in his usual cleancut, clear style, and with his masterly command of language which is unique in itself.

Sir A. E. Wright was the first to point out the role the calcium salts play in the coagulation of the blood, and the methods for increasing or decreasing the blood coagulability. Further, he developed the technique for calculating the coagulation and the coagulation time of the blood. This he accomplished by constructing a series of coagulation capillary tubes of definite size and construction by means of which

he could estimate the coagulation time of the blood, and each of these he called a coagulometer.

He may justly claim to have made contributions to the building up of a scientific system of therapeutics of the disorders of the blood:—

(1) By devising a coagulometer.

(2) Establishing by coagulometrical observations that the blood may often be rendered more coagulable by the ingestion of calcium salts, and in particular of calcium chloride.

(3) Showing that there is a certain determinable optimum addition of calcium salts which cannot with advantage be exceeded.

(4) Showing that an increase of coagulability may be expected from the ingestion of calcium salts in particular where we have to deal with a defect of coagulability dependent upon a diminution of the content of the blood in lime salts.

(5) Suggesting a method of establishing the lime salts of the blood by which the existence of this deficit may be determined.

(6) Demonstrating that internal hæmorrhage and hæmorrhage from operation wounds may be checked or kept under control by the exhibition of calcium chloride.

(7) By demonstrating that calcium chloride will often control or abolish chilblains and urticaria (in particular the form of urticaria which supervenes upon the administration of diphtheria antitoxine and upon the consumption of acid fruits and vegetables).

(8) Showing that the ingestion of blood-decalcifying agents such as citric acid and the administration of soap, is followed by a diminution of blood coagulability and correspondingly increased lymph effusion.

(9) And by bringing out more clearly the fact already demonstrated by Vierordt, that the ingestion of alcohol is followed by a diminution of blood-coagulability.

He says, in the incidental references which have from time to time been made in the medical press to the prophylactic administration of calcium chloride to patients on the eve of operation, and in the reports of a recent discussion in the course of which the efficacy of this treatment in the case of jaundiced persons was debated, he says it appears to have been overlooked that it would be both practicable and appropriate before proceeding to operate in a case where hæmorrhage was feared, to determine whether the patient's blood has acquired the particular degree of coagulability which is desired. Severe intestinal hæmorrhage supervening in the course of typhoid fever is still referred to in medical literature as if it were an unforesecable and altogether legitimate sequela of the ulcerative processes in progress in the intestine. In point of

fact, and the same applies in connection with many cases of hæmoptysis, the hæmorrhage is inordinate in quantity and is associated with a serious defect of blood-coagulability. Moreover, it is possible to seek warning with a view to providing against the danger. The mere fact of blood flowing profusely from a prick in the finger would of itself convey the necessary warning.

Lastly, he refers to the fact that urticarias supervening upon the ingestion of acid fruits and vegetables (rhubarb) are still chronicled in the medical press as events which refuse to fall into line with any known facts. He has not only shown that decalcifying agents as a class when introduced into the system induce a diminution of blood coagulability, but he has in himself achieved a diminution of blood coagulability and an urticaria by the ingestion of citric acid, and, on the other hand, in the dog, achieved a decalcification of the blood and a diminution of blood coagulability by the administration of soap.

In 1902 from a series of experiments and observation on rabbits, he pointed out and proved that the coagulation of the blood was brought about very rapidly by its admixture with lymph.

He sums up his inferences with regard to the causation of the thrombosis which occurs in connection with typhoid fever thus:—"Turning to the problem as to what is the cause of the thrombosis so frequently seen in connection with typhoid fever and scrutinizing the results of the blood examinations to see whether they shed any light upon this problem, our attention fastens on the fact that the quantum of lime salts in the blood of the typhoid convalescents examined was greatly in excess of that in the normal blood. This fact suggests that the increased coagulability during the convalescent stage may be dependent upon an excess of lime salts. Evidence pointing in the same direction is afforded by the circumstance that the blood coagulation times of our typhoid patients, after the content of their blood in lime salts had been brought within the limits of the normal, were longer than those of normal bloods, instead of being shorter as one would expect them to be if the increased coagulability were dependent upon an increase in the albuminous elements which enter into the composition of the fibrin. When we consider whence the excess of lime salts which appears to be present in the blood of the typhoid convalescent can be derived, we recognize that it must be obtained from the milk, which, for the most part, constitutes the exclusive dietary of the patient. Cow's milk contains, 1 part in 600 of CaO, as compared with 1 part in 800 contained in lime water. If we have in the milk dietary the key to the problem of the frequency of thrombosis in the period of convalescence, we have probably obtained a clue also to the solution of

Exhibiting the Effects of the DECALCIFYING TREATMENT in the case of TYPHOID CONVALESCENTS possessing UNDULY COAGULABLE Blood.

Initials of Patients.	Date of observation.	Notes with regard to dietary and treatment.	Notes with regard to clinical symptoms at date of observation.	Blood coagulation time in tubes at 18.5 ° C.	Content of Blood in Calcium Salts: concentration of ammonium oxalate solution which when added in equal volume to the blood respectively averted and failed to avert coagulation.				
					1/600	1/800	1/1000	1/2000	1/3000
J. B.	8-7-02	Milk diet	Typhoid fever; 4th week, complicated by Pneumonia and capillary bronchitis; acute development of femoral thrombosis	1′ 45″	0	0	Clot.	Clot.	Clot.
	10-7-02	Ditto and citric acid 4 grammes, 3 times	Pain and swelling in the limb less	6′	..	..	..	..	..
	11-7-02	a day since 8-7-02	No change	7′ 30″	0	0	Clot.	Clot.	Clot.
	13-7-02	"	Oedema and pain in limb gone, fever continues	7′ 15″	0	0	"	"	"
	14-7-02	"	No change	5′ 45″	0	0	0	"	"
B. D.	7-7-02	Convalescent diet including milk (2 pts.)	14th day of apyrexia, 22nd day after slight thrombosis	2′	0	0	Clot.	Clot.	Clot.
	14-7-02	Ditto and citric acid 2.5 grammes, 3 times a day since 12-7-02		3′ 45″	0	0	Trace	"	"
	19-7-02	"		over 15′	0	0	0	"	"
C. D.	8-7-02	Convalescent diet including milk (2 pts.)	45th day of apyrexia, 45th day after thrombosis	1′ 30″	0	Clot.	Clot.	Clot.	Clot.
	15-7-02	Ditto and citric acid 2.5 grammes, 3 times a day since 12-7-02		3′ 15″	Trace	"	"	"	"
	20-7-02	"		10′	0	0	"	"	"
J. A.	8-7-02	Convalescent diet, milk about 2 pts	7th week of apyrexia, 7th day after thrombosis	1′ 10″	0	Clot.	Clot.	Clot.	Clot.
	15-7-02	Ditto and citric acid 2.5 grammes, 3 times a day, since 12-7-02		5′	Trace	"	"	"	"
	19-7-02	"		over 20′	0	0	"	"	"
F. D.	8-7-02	Convalescent diet, milk 2 pts.	3rd week of apyrexia	9′ 30″	0	Clot.	Clot.	Clot.	Clot.
	16-7-02	Ditto and citric acid 2.5. grammes, 3 times a day since 12-7-02		over 13′30″	0	0	"	"	"
	19-7-02	"		over 30′	0	0	0	"	"
R. D.	8-7-02	Convalescent diet and milk	14th day of apyrexia	9″	Clot.	Clot.	Clot.	Clot.	Clot.
	15-7-02	Ditto and citric acid, 2.5 grammes		9 30″	0	0	0	"	"
	19-7-02	since 12-7-02, 3 times a day		10′	0	0	Clot.	"	"

certain other problems; in particular the problem of the frequently beneficial effect of a milk dietary on "serous hæmorrhage" from the kidney, and the comparative rarity of thrombosis after acute fevers, such as Malta Fever, where a milk diet is not imposed upon the patient. We obtain at the same time indications for the prophylaxis and after treatment of thrombosis, both when it occurs in connection with typhoid fever and when it occurs in connection with other diseases.

The remedial measure which would seem indicated is the exhibition of citric acid. The same treatment, initiated as soon as the danger of intestinal hæmorrhage has been surmounted would be appropriate for prophylaxis of typhoid thrombosis. Or, as an alternative, we might, with a view of restricting the intake of lime salts, appropriately undertake a partial decalcification of the milk. It has been pointed out that a partial decalcification is advisable also from the point of view of rendering it more easily digestible, and of preventing constipation. This partial decalcification can be readily effected by adding to the milk from .25 to .5 percent of citrate of soda, from 20 to 40 grains per pint."

Sir A. E. Wright was the first to conceive the practical possibility of antityphoid inoculation. Following the developments of Ehrlich's theory of immunity by careful experiment and the results of the Pasteurian inoculation against anthrax, and Haffkine's inoculations against cholera in India, he conceived the idea of antityphoid inoculation. But this involved serious and great risks: First, the risk of disseminating the germ of the disease; second, that of communicating the disease in a serious form in any case where by mischance he might happen to encounter a patient who possessed an abnormal susceptibility to the typhoid infection.

The difficulty was solved for him when he learned from Professor R. Pfeiffer that he had obtained the specific agglutination reaction to typhoid by the subcutaneous inoculation of a heated typhoid culture. This observation, since it pointed to the continued presence of effective vaccinating elements in the heated culture, immediately supplied the basis for the system of anti-typhoid inoculation which he employed.

By experiment he showed (a) that the typhoid culture is unaltered so far as its immunising properties are concerned, by exposure to the temperature which is required for the devitalization of the bacteria; (b) that the chemical relations which obtain between the protective substances of the blood and the unheated typhoid bacillus obtain also between these protective substances and the typhoid bacillus after it has been devitalized by exposure to a temperature of 60°C., and (c) that inoculation of cultures of typhoid bacilli which have been sterilized by exposure to a temperature of 60°C., induces in the organism an ela-

boration of:—1. Agglutinating antitropins. 2. Bactericidal antitropins. 3. Bacteriolytic antitropins. 4. Antitoxic antitropins. 5. Opsonic antitropins.

Regarding anti-typhoid inoculation he says:—"It would seem certain that there exists for every man a particular dose of the typhoid poison which is calculated to develop the maximum of response, and that the incorporation of a dose in excess of this is likely to be followed by a diminution instead of an increase in the bactericidal power. The man who gives the severest reaction to typhoid fever, does not always do the best. The importance of the accurate adjusting of the dose of the vaccine to the capacity of the particular patient, or in the case of large bodies of men to the capacity of the average individual, will have become manifest, and this accurate standardization is particularly necessary where a patient may be exposed to infection within a short time after inoculation for here it will obviously be important to avoid the production of a negative phase of increased susceptibility within the period immediately subsequent to inoculation."

In the case of the employment of excessive doses positive disadvantages might result from double inoculation. Re-inoculation should be resorted to after the interval of a year, more particularly in the case of men who have only been once inoculated."

In the American Yearbook of Medicine and Surgery he reports the results which he obtained in the use of anti-typhoid inoculations at Ladysmith. They seemed decidedly to protect against typhoid fever, only two percent of the 1705 men inoculated acquiring typhoid fever, while 13.25 percent of the 10,529 men not inoculated fell ill with the disease. If typhoid appeared in the inoculated the death rate was about the same as in the uninoculated. The results were thus encouraging so far as protection was concerned. From anti-typhoid inoculation in the Fifteenth Hussars in India, of those inoculated there was a morbidity of .55 percent and a mortality of .27 percent. The morbidity in the uninoculated was 6.14 percent and the mortality 3.35 percent.

In discussing the treatment of Scurvy in the American Yearbook of Medicine and Surgery for 1902, he considers the condition to be one of acid intoxication, when the dietary has been one which contains a large amount of elements producing an excess of acids, and that it is relieved or cured by many substances which contain an excess of bases over mineral acids. He states that the normal alkalinity of the blood is equal to one thirty-fifth normal saline. In his series of cases in the British Army the alkalinity of the blood was found to be very greatly decreased, only 1/70th to 1/200th normal. Treatment caused the

alkalinity to increase rapidly, the most efficient drug being sodium lactate.

In July, 1904, he pointed out a simple method of making slides for blood films, and making a differential count by rubbing the slide with fine emery paper and sliding the other one along it at an angle with the drop of blood, spreading it evenly. He pointed out the possibility of the application of formalin gelatin as an antiseptic and disinfectant protective skin to denuded surfaces, and for the arrest of hæmorrhage oozing.

He studied the micro-organisms found in association with some pathological affections of the mouth, particularly pyorrhœa alveolaris and pointed out that the organism of this disease, known as the Bacillus Fusiformis, was in reality Trypanosoma-like in nature.

In 1902 he studied and developed the technique for the measurement of the bactericidal power of small samples of blood under ærobic and anærobic conditions, and on the comparative bactericidal effect of human blood drawn off and tested under these contrasted conditions. This involved first a standardization of the bacterial culture employed, which he accomplished by employing one and the same stock of bacteria, and a young culture of 24 hours age, and by determining in each case the number of bacteria in a measured volume of that culture. This he did by making a measured dilution of the culture by means of a special capillary pipette which he constructed so that he could mix and dilute his cultures one million-fold to ten million-fold, or other dilutions; and then to enumerate them subsequently he transferred a series of measured volumes of the diluted culture, say 10 c.m., to the surface of a solid nutrient media and counted them by deducing the number of bacteria from the number of colonies which develop on the corresponding agar tube, and then reckon back the number in the original fluid before dilution.

Next he constructed specially built capillary tubes by means of which he aseptically drew off a measured volume of blood from the patient and hermetically sealed it. This is then centrifugalized and the serum and corpuscles thus separated. Thus in the method of bactericidal estimation of the blood, a series of measured volumes of undiluted serum are brought in contact with a series of graduated dilutions of the culture, the object being to determine what is the lowest dilution of the culture with which a complete bactericidal effect is exerted. This he did by means of a specially graduated pipette which he made with a spiral and a bulb. He draws up into it a certain definite amount of sterile broth, then the serum and the diluted culture, which are then

mixed thoroughly, and the tube kept at a certain definite temperature for a certain time, and if the serum has not been completely bactericidal and has not killed off all the bacteria a turbidity will be present from their growth. If the serum has been completely bactericidal the broth will be clear. A simple numerical expression for the bactericidal power of the blood is obtained by specifying the number of bacterial culture which is completely sterilized by digestion with an equal volume of serum. This method may also be employed for determining the bactericidal power of any chemical antiseptic. Under anærobic conditions. he devised a method for measuring the bactericidal power of the blood by preventing the access of air by enveloping the blood in fatty acid-free oil.

The results of his investigations of the bactericidal power of the blood, both anærobically and ærobically, seemed to show definitely that neither contact with the external air nor contact with ordinary glass surfaces exerts any important influence on the bactericidal power exerted by human blood upon the typhoid bacillus and the cholera vibrio.

By decalcifying the blood with a one percent solution of citrate of soda in physiological salt solution, he avoided the complications introduced by blood coagulation and made it possible to separate the white corpuscles from the blood fluids by centrifugalization, decantation and washing.

The blood, the bacterial suspension, and the soda solution, are mixed and kept for fifteen minutes in the incubator at 37°C. in capillary tubes and the phagocytosis is thus conducted here after which film preparations are made in the ordinary way, stained by Leishman's stain and examined under an immersion lens. By enumerating the bacteria ingested in a number of polynuclear white blood corpuscles and dividing, an average is obtained which is taken as the measure of the phagocytic power of the blood. It is compared, when comparative experiments are made, with the phagocytic power of a normal blood.

The opsonic content of any blood therefore is arrived at by comparing the amount of phagocytosis observed as a result of the activity of its serum with the amount of phagocytosis observed in the case of a normal serum used as control. The figure so observed is termed the Opsonic Index of the patient's blood. If, therefore, we say that a patient's blood has an opsonic index of 0.5 to the tubercle bacillus, what do we mean? Simply that it contains but one half the normal quantity of those opsonins which are essential to a combating of the bacillus tuberculosis.

From these observations he began to ask himself; Why do microbes invade the body; what does Nature do to ward off these microbes, or to

cure the invasion after it has begun? When a microbe is introduced, such as staphylococcus, into the artificial nutrient media employed in the laboratory it increases, and millions of microbes are produced in a very few hours. It is obvious that the blood cannot be such a medium. When you introduce microbes into the blood, they do not proliferate at random in that fashion—there are protective or bacteriotropic substances in the blood that prevent them growing and increasing in the the body. When one considers how the blood differs from the nutrient medium used in the laboratory two outstanding differences will be found. It contains white blood corpuscles and these have the faculty under certain circumstances of picking up the microbes and ingesting them, and killing them. Now the blood fluids are not simply an indifferent medium, as Metchnikoff the author of the theory of phagocytosis thought; the blood differs from the broth not only in the fact that it has white corpuscles but that it also contains substances which act on the bacteria. They act upon them somewhat after the manner of antiseptics. The analogy is not very close, but it is something of that sort. In other words your blood represents a fluid somewhat comparable to weak carbolic acid in which are white corpuscles. These antiseptics in the blood may be partly responsible for keeping the blood free from bacilli but are not wholly so. By a certain technique he found that it was possible to separate the white corpuscles from the blood fluids, to test them separately and see what white corpuscles could really do. So he took white blood corpuscles obtained from his own blood and an emulsion of bacteria, mixed them together in capillary tubes, kept them at blood heat for about half an hour, and watched to see what occurred. He was astonished to find that under these circumstances the white corpuscles did not ingest the bacteria, and therefore it looked as if the white blood corpuscles were of no use. He then mixed with the bacteria and the white blood corpuscles a portion of the fluid of the blood and he found that this influenced the microbes in such a way as to prepare them for ingestion. He found then that when you mix bacteria and white blood corpuscles together the white blood corpuscles have no power of taking up the bacteria; but when you add the fluid of the blood to the mixture of leucocytes and bacteria, the fluid of the blood alters the bacteria in such a way as to make them palatable for the white blood corpuscles. In other words the blood has prepared the bacteria for ingestion.

For this phenomenon he had to find a name, and, spending some time over Greek and Latin dictionaries, he found the word *opsono,* which means, "I prepare for dinner." It must be sharply distinguished

from an almost identical word which means "I advertise or proclaim with a trumpet." These substances which prepare for ingestion are what Sir A. E. Wright speaks of as "Opsonins." It was a question at the time whether the white blood corpuscles or the opsonins in the blood was the more important agent. In order to answer this question he took a patient who was very badly infected with the tubercle bacillus and he contrasted the blood of this patient with what he calls "pool," which means the pool of the blood of all the normal men in the laboratory. With this blood pool as control he contrasted the blood of this highly infected tubercular patient and investigated the question as to whether the patient's white blood corpuscles or the opsonins in his blood were deficient. He found that the white blood corpuscles of his patient were just as active in phagocytosis as were his own normal white corpuscles but that the paient's serum was only half as active as his own serum. Hence if the activity of normal serum for phagocytosis be expressed as 1.0 we must express the abnormal activity of the patient' serum as 0.5. These figures represent respectively what he terms the "Opsonic Index" of the normal person and of the disease.

The question was then,—Does the substitution of another medium for the citrated blood plasma, which bathes the corpuscles, exert an influence on phagocytosis, and do the blood fluids co-operate in phagocytosis by exerting a direct stimulating effect upon the phagocytes or by effecting a modification in the bacteria?

By a series of experiments, mixing heated—or as he called it, inactivated—serum with the corpuscles and bacterial suspension, and also unheated serum, and at the same time doing a series of control experiments, he found that the heated serum, like the salt solution, acts merely as an inert diluent, and that the blood fluids modify the bacteria in a manner which renders them a ready prey to the phagocytes, and the elements in the blood fluids which produce this effect he called the "opsonins."

The question as to whether the unheated serum contains in addition to the opsonins also elements which directly stimulate the phagocytes, that is stimulus, remains for the present unsolved.

The increased phagocytic effect which is obtained with the blood of successfully immunized persons is attributable not to any modification induced in the leucocytes but to an increased opsonic power in the blood fluids. Conclusive evidence of this was obtained by separating in the case of two bloods with little if any conspicuously different phagocytic powers in each case, the blood fluids from the corpuscular elements, and then effecting an interchange of the blood fluids. The leucocytes of the successfully immunized patient exhibited under these circumstances the

smaller phagocytic action characteristic of the blood of the normal individual who served as a control; while the leucocytes of the normal individual exhibited the increased phagocytic action characteristic of the blood of the successfully immunized patient. This is also confirmed by similar results in connection with the tubercle bacillus. By thus bringing about phagocytosis of different organisms and studying the action of the blood fluids under different conditions, he was able to reach the following conclusions:—

1. That the opsonic power of the blood fluids disappears gradually on standing, even when the serum is kept in a sealed capsule sheltered from the light, and in five or six days stands a little more than half of what it was originally.

2. That the opsonic power of the blood fluid is but little impaired by the action of heat until these have been exposed to a temperature of above 50°C.

3. That the opsonic power of the blood serum is diminished when this last has been digested with typhoid bacteria.

4. The opsonic power of the blood fluids is diminished while the phagocytic capacity of the white blood corpuscles is preserved when the blood fluids and corpuscles are separately digested with Dahoia venom. In the anti-opsonic effect exerted by the venom on the blood fluids, we have probably the explanation of the reduced resistance to the septic invasion which supervenes upon viper bites.

5. That is seems probable that the bacteriolytic, bacteriacidal, and bacterio-opsonic effects exerted by the blood fluids, are each in their degree manifestations of a digestive power exerted by the blood fluids on bacteria brought into contact with them, and that we must also always take into consideration the opsonic effect.

By numerous experiments with the blood from different parts of the body, testing its phagocytic power, he has shown that with the ordinary infections and the tubercle bacilli it may be enunciated as a proposition of general application that the invading micro-organisms cultivate themselves in the organism in the regions of lowered bacteriotropic pressure, that is, the mass effect exerted upon the invading bacteria by the protective substances contained in the blood fluids is lowered in these places.

Every patient, at any rate in the early stage—in the uncomplicated stage—who is infected by bacteria under ordinary circumstances has got diminished resistance, and that deficiency of resistance does not reside in his white blood corpuscles, but in the fluids of the blood. Whether he is infected or not depends on his power of resistance.

One is able to explain to himself now, why in a world where we all come in contact with infection, some people take tubercle and some do not, why some get boils and some do not; so we see that resistance is the important thing.

The next point is, What is the good of that unles you can alter it? And when you throw back your thoughts to what has been done in connection with the prevention of infectious disease you will see why inoculation is resorted to. Commonly when one speaks of inoculation he means vaccination, and people that are subject, as we all are, to attack by the small-pox microbe, take precautions through inoculation that they may have a higher resisting power. In order to do this we must first study what happens when the microbe attacks the body. For obvious reasons living bacteria could not be used, but Sir A. E. Wright used bacteria which had been devitalized at a comparatively low temperature—so low that though it was rendered extinct the chemical constitution of their protoplasm was not greatly altered. So he took cultures of bacteria and killed them at 60°C., thus obtaining what he calls a "bacterial vaccine."

Now when a proper quantity of vaccine is put into the body, what happens? When the resistance after inoculation is tested it is found reduced. This is called "the negative phase." The inoculation of a considerable quantity of vaccine thus reduces the resistance of the patient. Then after a time the resisting power increases; that is spoken of as "the positive phase." Later still it falls away and eventually the blood of the patient does not differ very much from the normal.

During the "negative phase" when the curve has gone down, the poisons which have been introduced are circulating in the blood of the person, and the immunization is under the influence of a stimulation. This stimulus will continue to act for days and the material injected will continue to circulate for days.

In other words, after inoculation there occurs first a diminished resisting power; that increased resisting power lasts for a period and then it falls away. Now, when the resisting power has fallen away, the patient is not what he was originally. He has retained the faculty of rapidly manufacturing protective substances again—these opsonins—as soon as he is re-inoculated.

What happens when a second inoculation is given? After the first there occurs the negative phase, and then the positive phase, and on the declining wave of the latter, the patient is re-inoculated. The opsonic power goes down again and then rises higher than before and so on in this step-ladder fashion. One can, however, usually increase the effects

of a primary inoculation by a secondary inoculation, though one cannot do so indefinitely. Here is an inoculation after which the resisting power runs down but after a time the patient is re-inoculated with a large dose; the resistance goes down further and before he can recover, another dose iis given and the resistance goes down still further.

So anybody can inoculate with successive doses and reduce the resisting power to anything he likes. It is quite easy by this method to reduce the resisting power of the blood enormously. This is the reason why one cannot inoculate at random without testing the blood every time. After every inoculation the resisting power of the blood lessens and then is increased, and when it is increased you may give another inoculation and keep it up. Wright tried to get only a small negative phase and a fairly big positive phase; when this is falling off he gives another inoculation and so keeps the patient on an average considerably above normal.

The principles of inoculation summarised are these:—After you have found that a patient is infected with a microbe you isolate the microbe in pure culture and then test the resistance of that patient's blood to see whether or not it is able to kill off that microbe as well as normal blood can. If he is not able to do so, you inoculate with the proper vaccine, with vaccine made from staphylococcus, if it is staphylococcus infection, from the tubercle bacillus if it is tubercle infection, and so no. Throughout the whole course of the inoculation one tries to keep the resistance of the patient's blood as high as possible.

Obviously if a patient does not react to the typhoid bacillus, the typhoid would always get the better of him, but we know that in the course of typhoid fever, as in all bacterial fevers, the body makes an effort to throw off the disease; in other words, the body inoculates itself. As soon as the poisons get into the blood the body sets to work to produce protective substances and there occurs the phenomenon which we speak of as auto-inoculation. You may get auto-inoculation progressing favourably as in about four out of five cases of typhoid fever. In fact the patient gets well of his typhoid because he inoculates himself from his bacterial focus and thus produces his own protective substances. In cases in which you have a strictly local infection, however, such as tubercular glands, such as acne, such as all those purely local diseases where you have not constitutional disturbances, the body takes no steps to protect itself, and the disease runs on practically indefinitely. You may find the disease lasting through life, and then you will find the opsonic power low. This is because the bacterial focus is closely shut off from the lymph and blood streams, and consequently no auto-inoculation can take place. In many of those cases where the body is not

inoculating itself, you can inoculate for it and bring about a favourable result.

When some cases get well of themselves it may be due to the fact that auto-inoculations have taken place. When you massage a part, what you do is you knead it and you press out the fluid from that part into the blood or lymph system. If the tubercle bacillus happens to be growing in a knee, your massage is the equivalent of an inoculation from the fact that you are driving out into the circulation fluid infected with the bacillus. In the case of a child who had a tubercular knee, after the first massage there was a lowering of the opsonic power, but the patient came up to normal again. With another massage the same result was obtained; and to show that this auto-inoculation was the same as an inoculation put under the skin, an inoculation was undertaken with new tuberculin, when a series of events similar to that which had followed massage was obtained. It would therefore appear that the tendency of the bacterial disease to get well of itself, is due to the fact that in the course of the disease auto-inoculation is taking place constantly and that you get increased resisting power as a result of this. However, the auto-inoculation that takes place may be very ill-adjusted. Sometimes you get inoculation of much too large a dose, and then you find a diminution of the resisting power instead of an increase. What one has to do is to keep a patient for as long a period as possible, as high as possible above normal. If he should get down much below normal the tubercle bacilli may take the opportunity to spread throughout his body and he may get general tuberculosis. The negative phase has to be closely watched and the resisting power of the patient tested after each inoculation. Such a dose of vaccine must be given that will not reduce the patient's resisting power much (a dose that produces practically no clinical result) and yet large enough to give a good positive phase following a slight negative phase.

When he does an artificial inoculation he puts his vaccine into the subcutaneous tissues. There is very little doubt that this is a great deal more effective in making protective substances than if inoculated directly into the blood stream; furthermore, one does not get poisoning effects if the patient is inoculated into the subcutaneous tissues. Where one does not know what to do with a disease, where the microbes insist on living in the body; where, for instance, after a surgical operation the wounds fail to heal because the microbes continue to multiply themselves, you can find out the microbe, test the patient's resisting power to this particular microbe, and set to work by appropriate inoculations to increase the resisting power of the patient.

I will quote a case reported by Wright and Douglas of furunculosis. The patient had suffered from boils for four years; his opsonic index was 0.6 to staphylococcus pyogenes on the first examination, and 1.1 on the second. Dr. Wright inoculated him with 2,000,000,000 dead staphylococci. The next day there was a diminution of the quantity of opsonins from 1.1 to 0.78; a few days later the index was 1.4, and while the opsonic power was high another inoculation was given which resulted in first a negative phase, then a rapid reflow, and in a day or two a high tide of opsonic power, equal to twice the normal, was reached. The clinical result was eminently satisfactory. After several weeks of treatment the boils quite disapeared.

The general principles of treating any bacterial invasion after the manner of Sir Almroth Wright and Captain Douglas, are briefly:—

1. Isolate in pure culture the causative micro-organism.

2. Estimate the opsonic power of the patient's blood to this micro-organism.

3. If the opsonic index be at or below normal, prepare and standardize a vaccine from this micro-organism.

4. Inoculate the patient with this vaccine with appropriate doses and at proper intervals, as shown by a systematic estimation of the opsonic content of the patient's blood.

THE OPSONIC INDEX IN DIAGNOSIS:

Of what importance, if any, are opsonsic methods of investigation in enabling us to arrive at an accurate diagnosis of a given case? Certain general principles have emerged from the study of many cases:—

1. Normal individuals, not subjects of any bacterial infection, present a constant opsonic power to the various pathogenic bacteria.

2. Individuals the subjects of a strictly localised infection, due to any micro-organism, show a lowered opsonic index to that particular micro-organism as compared with a normal person.

3. Individuals, subjects of systemic infection, for example acute pulmonary tuberculosis, show a high opsonic power, or an opsonic power fluctuating from high to low, and Dr. Wright believes that this fluctuating power is due to repeated inoculations by the patient of bacterial products from his own focus of disease, and that it is comparable to what occurs after artificial inoculation, namely, negative phase and positive phase, and so forth.

By far the most important practical application of these principles so far has been in the diagnosis of a systemic pulmonary tuberculosis from other conditions, or in eliminating tuberculosis from our consideration. The following is the opsonic method of the diagnosis of an obscure case:—

A youth, aged 20, with a tentative diagnosis of a general tuberculosis, has symptoms of fleeting pains, especially in the extremities, intermittent rigors and a general feeling of malaise. No physical signs of disease could be found. His temperature was 102°F. His tubercle-opsonic index was 1.0 so that acute tubercular infection was improbable. Suspecting gonorrhœal infection his opsonic index to the gonococcus was found to be twice normal; the patient owned to a recent gonorrhœa and the diagnosis of a gonorrhœal systemic infection was therefore correct.

This case serves to illustrate how clinical observation is successfully supplemented by examination of the blood of the patient.

The diagnosis of acute phthisis from ulcerative endocarditis and enteric fever presents at times very great difficulties. A number of such difficult cases exhibited the signs and symptoms of acute tuberculosis. Three cases have come to autopsy, two were ulcerative endocarditis and were both diagnosed as such after eliminating acute tuberculosis by the absence of a high opsonic index. One was a case of enteric fever with a secondary pnuemonia.

In the diagnosis of the more chronic forms of pulmonary tuberculosis from similar but non-tuberculous diseases, he has used with success the opsonic reaction in, 1. Malignant disease of the lungs. 2. Chronic bronchitis and emphysema. 3. Bronchiectasis. 4. General debility.

The presence or absence of tuberculous infection in these cases is often difficult to establish, but Dr. Wright is convinced that a considerable number may be correctly diagnosed by opsonic methods. As concerns malignant disease of the lungs, by eliminating tuberculosis one case was correctly diagnosed, as autopsy confirmed. In cases of phthisis there are many difficulties, yet he believes these will be overcome and that the tuberculo-opsonic index will eventually prove of material assistance, and from practical experience he knows that opsonic methods are of considerable assistance in determining whether a peritoneal or a pleural effusion is or is not tuberculous. He says: "We have, in the power of raising the anti-bacterial power of the blood, with respect to any invading microbe, out of all comparison the most valuable asset in medicine."

In 1904, from their experimental data with the different organisms and blood fluids and corpuscles, as before described and from other facts elicited by them with regard to the bactericidal action exerted by the human blood on the various species of micro-organisms, Sir A. E. Wright and his pupils classified bacteria thus:—

1. Bacteria which are eminently sensible to the bactericidal bacteriolytic and opsonic action of normal human blood fluids. The Bacillus typhosus and the Vibrio choleræ Asiaticæ.

2. Bacteria which are in some measure sensible to the bactericidal action of the normal human blood fluids and which are eminently sensible to its opsonic action. The Bacillus coli and the Bacillus dysenteriæ.

3. Bacteria which are absolutely insensible to the bactericidal action of the normal human blood fluids but are eminently sensible to the opsonic action of the fluids. The Staphylococcus pyogenes, the Bacillus pestis, the Micrococcus Melitensis, the Diplococcus pneumoniae Frænkel.

4. Bacteria which are insensible both to the bactericidal and to the opsonic action of human blood fluids. The Bacillus diphtheriæ and the Bacillus xerosis.

Since that time they, and also our own Canadian workers, have found that the diphtheria bacillus is sensible to the opsonic action of the blood fluids and that a permanent opsonic vaccine can be made against it.

The method of preparation of the vaccine Wright adopted is as follows: To a 24-hour growth of staphylococcus on sloped agar tube, about 10 cc. of sterile physiological salt solution is added: the culture is churned up with this, then let stand in order to allow all the unresolved bacterial masses to subside, and the supernatant fluid drawn off by siphon action into a special form of tube and heated to 60°C. for half an hour. The tube is then incubated for 24 hours in order to allow of a multiplication of any bacteria which may have survived the heating. A sample of the heated culture is now inoculated upon agar with a view to the detection of any surviving micro-organisms at the same time drawing off a sample of the suspension and enumerating them under the microscope. After verifying the sterility of the vaccine, it is now diluted with a sufficiency of physiological salt solution to bring down the number of staphylococci in the cc. to 2,500,000,000. This is what is called standardizing the vaccine. This is done by taking equal volumes of normal blood and the vaccine, mixing thoroughly, and placing on a counting slide. 500 red corpuscles are counted, and in this area the number of organisms also and their proportion noted. We know then that there are 5,000,000 red blood corpuscles to the cubic millimeter, and from the proportion of organisms to them the number of organisms can be easily estimated, and from this the amount of dilution necessary to bring the vaccine to the standard required can be easily calculated. Finally lysol is added, enough to bring the content of the

vaccine in this antiseptic to .25 percent, and the vaccine is sealed in rubber-capped bottles.

Wright defines vaccines as "any substances that on being inoculated into the body will cause the generation of a protective substance."

He includes under this term, Koch's new tuberculin; and whatever vaccine he employs, it consists of a bacterial body.

In inoculating his patient he sterilizes the syringe in boiling oil at 140°C. and the inoculation made into a portion of the body where the skin is loose, as the back of the shoulder or flank in the case of anti-typhoid inoculation. At first the dosage used, generally ¼ cc. was too large and the subsequent symptoms, both constitutional and local, were severe in many cases. With the large single dose employed in the South African war collapse and rigors were not infrequent.

Subsequently the dose was reduced and still quite sufficient to elicit a satisfactory elaboration of typho-trophic elements, and the constitutional symptoms were limited to some headache and two or three hours malaise; then in six hours he sleeps and next day his temperature goes down and he feels comparatively well except in respect of pain at the seat of inoculation.

Certain generalizations have emerged from the investigation of numerous cases:—

1. If the bacterial infection be strictly localised, the opsonic index of the blood, as concerns the particular microbe causing the infection, is below normal. For example, the blood of a patient suffering from furunculosis will probably show an opsonic index of about 0.6 to the infecting micro-organisms, that is to the staphylococcus pyogenes, or the blood of a patient who is suffering from tuberculous glands in the neck, will probably show an opsonic index of 0.7 to the tubercle bacillus. In each case the patient's blood is compared with that of a normal man.

2. In such infections which are not strictly localised the opsonic index in systemic infections tends to fluctuate from high to low. This is well shown in cases of acute pulmonary tuberculosis. One day will show an index of 1.6, and a few days later as late as 0.6.

These two generalizations are of primary importance both as concerns the diagnosis and the treatment of bacterial infections.

The American Yearbook of Medicine and Surgery for 1905 sums up Wright's conclusions with regard to the treatment of Acne, Furunculosis, and Sycosis by inoculations of staphylococcus vaccine, thus: "It is satisfactorily established that chronic staphylococcus invasions can be effectively treated by inoculations of a staphylococcus vaccine; that these inoculations induce the chemic machinery of the patient to elaborate

the protective secretion which is required for the destruction of invading bacteria. Clinical improvement followed improvement in the phagocytic power and the negative phase which supervened upon inoculation revealed itself in diminution in phagocytic power and sometimes in the appearance of fresh lesions.

THE OPSONIC INDEX AS USED IN THE DIAGNOSIS OF TUBERCULOSIS.

For this purpose old Tuberculin, T.O. has been used in six cases. In four, the index was normal the day before and the day after an injection of T.O., 1 mg. (in one case 0.5 mg.) was given. In Case V. the index dropped from normal to .7 and rose next day to 1.4. No case showed any temperature reaction; none had tubercle bacilli in their sputum. Case 6 was used as a control, he had undoubted phthisis, tubercle bacilli in sputum and crepitations were heard at both apices. His index was 0.7. Twelve hours after inoculation of 0.5 mg. T. O. his index rose to 1.1, and by the fifth day fell to 0.9. His index was kept up by five subsequent injections and he at no time showed any temperature reaction.

The conclusions to be drawn are these: The temperature reaction is not always to be relied on. Old tuberculin, like the new T. R., does not affect the index of healthy people. A normal opsonic index points to a negative diagnosis, but not conclusively as in Case V. A case of empyæma at the Victoria Park Chest Hospital, in London, is referred to. The patient's acute symptoms were over but the conditions seemed prolonged indefinitely. On testing his blood twice to culture of pneumococcus obtained his power of resistance was found to be normal yet not enough to kill off the microbes. An inoculation with a vaccine prepared from the patient's own microbe was undertaken, and the opsonic index rose from 1.0 to 2.4. Two more inoculations were made and in two weeks the patient was discharged cured.

Another case refers to a boy who had tubercles on both irides. A high degree of opsonic power was maintained for many months by inoculation with new tuberculin in proper doses and at appropriate intervals. The patient has so improved that his eyes might easily pass for normal and doubtless will get completely well. Another patient, a male, aged 20, was under the care of Dr. Glover Lyon. He developed a right-sided empyema, which was treated by resection of a portion of a rib, evacuation of the pus, and drainage. Seven weeks later in spite of careful surgical treatment the wound was discharging 1-2 oz. of pus every day and a sinus quite four inches long persisted. The pus was

investigated bacteriologically and a pure culture of the pneumococcus of Frænkel was obtained. With this organism the quantity of pneumococcic opsonins present was estimated; that is to say, the patient's opsonic index to the pneumococcus was determined and found to be 1.0 or normal. In spite of the fact that there was no deficiency of the pneumococcic opsonins it was thought well to increase their quantity to a point well above normal for it seemed probable that the thick pyogenic membrane of a chronic empyema would so impede the flow of lymph to the bacterial foci that normal lymph would have insufficient opsonic power to prevent the growth of bacteria there. A vaccine therefore was prepared by inoculating a dozen milk-agar tubes with the pneumococcus which had been isolated from the patient's pus. Having obtained a vigorous growth the colonies were removed from the agar tubes to normal salt solution. This was sterilized at 60°C. and then standardized. The patient was given a quantity of the vaccine containing 100,000,000 pneumococci. On the day folowing this first inoculation his opsonic index shot up from 1.0 to 2.5, that is to say, he had more than doubled the quantity of his pneumococcic opsonins. During a period of two weeks he had three inoculations, and upon each occasion there followed an exaltation of the opsonic index. The clinical result was very striking. At the end of the first week of treatment there was a diminution of the discharge and a shortening of the sinus; at the end of two weeks the discharge had entirely ceased and the sinus had closed, all that remained was a scab covering the original wound. The patient left the hospital a few days later and went to work at once. He has remained quite well since.

Another case of lupus was that of a girl of 16. This condition began when she was nine months old. She had been scraped by the surgeons nine times, had had X-Ray treatment for two years, Finsen light for months and ultra-violet rays for two months. In spite of all, however, the disease steadily advanced and when Dr. Ross first saw her her face and neck below her eyebrows was almost completely covered with dirty-looking patches of lupus. There was considerable ulceration, crusting and oozing. There were several other patches on her arms and shoulders. So extensive and so chronic was the condition that it was felt the case was almost hopeless. Much to his surprise, however, great improvement followed three months careful inoculations with tuberculin and with staphylococcus vaccine. The latter was used to combat the secondary pus infection which he thought was chiefly responsible for the crushing and oozing. When he last saw her a few weeks ago after a period of six months she was quite a different-looking girl. The lupus

ulceration had healed in many places and the pus infection was manifestly almost controlled. He is hopeful that ultimately the disease may be entirely eradicated.

In a similar way was treated one case of severe tuberculous cystitis the diagnosis of which was determined by finding tubercle bacilli in the urine and by cystoscopic examination. After six months treatment the frequency of micturition and pain both left him and the tubercle bacilli had disappeared from the urine. Nine months subsequently he was in perfect health.

Tuberculous glands as a rule disappear under treatment with tuberculin. Of two such cases, in one the glands diminished rapidly but in the other case the progress was slower; large masses decreased much in size, and at present they are just palpable. The general experience of those who have treated tuberculous glands and also tuberculous disease of the genito-urinary system, such as cystitis and epididymitis ,is that these conditions are especialy amenable to inoculation with tuberculin.

In testing the opsonic effect of tubercular patients, he did not find at the outset in any of his cases an opsonic power equal to that of normal blood. On the contrary there was in each a defect of opsonic power, but this low power seemed to be the *occasion* and not the *consequence* of infection as shown by the following results:—

1. Very low phagocytic indices have been obtained where constitutional symptoms were absent or insignificant.

2. In practically every case it was possible to increase by inoculation of a tubercle vaccine the opsonic power of a patient's blood fluids.

It was also found that the bacteriotropic pressure is always reduced in the actual foci of infection and from this it would be reasonable to expect from the evacuation of abscesses, that the flow of new and active lymph which would follow upon the evacuation of the stagnant and exhausted lymph, would operate in the direction of checking the growth of invading micro-organisms.

With regard to pulmonary tuberculosis considerable investigation into the character of the opsonic index in the different varieties has yielded the following generalizations:

1. Early cases, or more advanced cases that have had complete rest in bed for a time and also sanatorium "cures," show a low or a lowered opsonic index.

2. The more advanced cases show a high opsonic index, or a fluctuating opsonic index.

Obviously only the outlines of the subject have been touched so far; it requires a great deal of effort to find out all that can be found about

therapeutic inoculation. There are very many diseases yet to be tried. In each it is to be seen that if you can find the microbe you can test the patient's resistance, make inoculations and strive for favourable results. When you have to deal with any bacterial disease, let your thought go immediately to the question as to whether or not this can be treated by inoculation.

Opsonic work and research was, however, not doomed to remain alone long in the Old City beside the Thames. Men eager and anxious to learn the new technique and knowledge soon flocked in from all lands to learn from its master, and associate with him in the work. Prominent among those in the front were our own Canadian men, Dr. George Ross, of Toronto and Baltimore, Dr. Hamilton, of the Royal Victoria Hospital and Dr. E. M. von Eberts, of the Montreal General Hospital. They returned carrying with them the new knowledge and eager to carry on the work. Modesty forbids us saying much as to the actual work accomplished so far, or as to its future outlook, more than that it is most hopeful although it is yet in the experimental stage.

Briefly we may say that pyogenic localized infections which have been chronic for varying periods of time and have failed to respond to the ordinary surgical treatment, have healed in a short time after inoculation and many cases have thus been treated with these results. I will quote a typical case which I examined personally and who gave the following history. G. C., aged 19, a clerk, came to the Montreal General Hospital on September 1st with the right axilla, pectoral muscle and dorsum of scapula covered with boils and abscesses. They were opened and drained and lead lotion applied, but they recurred continuously one after another. About September 15th Dr. Hill took a culture of the organism infecting him—which proved to be the staphylococcus albus—made a vaccine and gave him one inoculation. In one week his boils and abscesses were dried and he was given a second inoculation in two weeks when they were all healed and have remained so ever since, so to January 22nd when I saw the patient last. The scars still remaining on this date he was given one more inoculation.

Besides these there are cases of long chronic standing that are gradually improving under inoculation treatment. One in point is J. C., female, who entered the Montreal General Hospital in October 1903. She had then a pyogenic osteomyelitis of one of the metacarpal bones of the left hand. This was excised and the wound healed. Soon after, however, large abscesses appeared in the left axilla; these were opened and drained but broke out in the left breast, then the right breast and later the axilla. Both breasts were amputated and after a

long time the left one healed. Next abscesses broke out last year in her right hip and later in the right knee with open sinuses discharging continuously. Her right leg became flexed at the knee so that it had to be kept on a double inclined plane splint in extension. These sinuses gave her a great deal of pain and discomfort. About December 1st, 1906, inoculations were commenced and her index watched carefully. She has improved and is steadily improving so far; the sinuses do not pain her as they did and are discharging a great deal less and some of them are healing slowly. The skin wound from the amputation of her right breast is also healing.

In our own student body we have one who is at this time undergoing inoculation treatment for lupus and it is fast disappearing and he testifies to the efficacy of the treatment.

Besides this, there has been one case so far of epidemic cerebro-spinal meningitis that recovered under inoculation treatment, and another one of a baby, aged seven months, at present being tried.

In conclusion, gentlemen, we may say we have but touched the fringe of the life and great work which Sir A. E. Wright and his associates have accomplished with their untiring energy, and have but scanned the horizon of a vast subject with a bird's eye view. How vast its magnitude and how far-reaching its results none can predict. As Dr Osler remarked to us in his clinic at the Royal Victoria Hospital: "We are entering the profession on the verge of an age of great discovery and advancement in medical science." Contemporaneously with Sir A. E. Wright's work, and in fact somewhat in conjunction with him, Professor Ehrlich of Heidelberg, Germany, has succeeded in inoculating 35,000 rats and mice with malignant disease of all types on similar principles, and has experimentally produced and reproduced it in these animals with varying intensity, the results of which have not yet been published. Again we await expectantly and hopefully the results of von Behring's treatment of tuberculosis by inoculation.

Truly our predecessors have and are handing us down a goodly heritage and one rich in knowledge and skill, discovery and progress. They are casting their mantle of honour and responsibility upon us and as men worthy to be physicians it behoves us to put our shoulders to the wheel of progress and as Hunter replied to Jenner: "Not only to think, but to try, to be patient, be accurate to carry on the work," and to contribute in the years to come our quota of medical knowledge to that already given us.

A PROLONGED FAST—SOME EXPERIENCES AND FINDINGS.

BY

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Fasting is perhaps one of the oldest practices of man. His reasons for fasting have been many and varied. Religious views seem to have been the determining factor in the vast majority of cases; but not all have fasted for spiritual reasons only. Many have fasted simply for its physical effect in the hope of being relieved for some disease or affection with which they were afflicted. In those cases where their trouble was due to over-eating it is needless to say they were either greatly relieved or entirely cured, but when it was not due to this it was often attended with unfavourable results.

Some have fasted for the mere notoriety of the fact the most illustrious of whom, from a scientific standpoint, was Succi, an Italian. Whether there have been any who have fasted purely for scientific purposes I am unable to say; undoubtedly there have been some. However physiologists have availed themselves of every opportunity of studying its physiological effects. The observations made upon Succi, Cetti, Merlatti, Dr. Tanner, and other renowned fasters, have added much to our knowledge on the subject of metabolism.

Thinking perhaps it would be more or less interesting and even possibly instructive, and believing that I would not suffer any ill effects from it, I proposed to one of our professors that I would fast, if from a scientific standpoint he thought it would be of any value. He considered that if I cared to do so it would be well worth while. Having secured the co-operation of Dr. A. H. Gordon, Dr. T. P. Shaw, Dr. A. L. Gilday, and Dr. A. C. Rankin, a fast was agreed upon.

It began on December 27th, 1906, at 9 a.m., when I partook of the last meal, which consisted of a little oatmeal, milk and two egg sandwiches, and was concluded on January 5th, 1907, at 6 pm. when I first took nourishment. From 5 p. m. on the first day, when I was asked to take a teaspoonful of charcoal (to act as an indicator) until 6 p.m. on the last day, or, in other words, a period of nine days, I took absolutely no nourishment whatsoever, in any shape, form, or manner, though I drank freely of what water I desired. I might mention here that during the nine days I drank six litres of water, or an average of about three ordinary tumblerfuls a day.

My weight dropped from 140.2 pounds at the beginning of the fast to 125.9 pounds at its conclusion, making a total loss of 14.2 pounds,

or an average loss of 1.57 pounds a day. My weight after the fast, at the end of the first week, was 139.6 pounds; at the end of the second week, 136.7 pounds, while at the end of the third week it was 138 pounds. To gain the 13.7 pounds, which I did during the first week after the fast you will naturally think that I must have eaten excessive amounts that week. Such is not the case. I ate, it is true, but only of normal amounts, and it practically did not exceed that taken on the second week when I lost over two pounds, or that taken on the third week when I gained a pound. I drank a good deal of water during the first week and that undoubtedly helped much to increase my weight.

It may be interesting to note here that while the specific gravity of my blood was but 1021 on the last day of the fast, it was up to 1043 one week later.

I can only hope to give you but an approximate idea of the psychical or mental effects of the fast: more than that is impossible, for I presume that but few of you have ever experienced anything like it. However, I will endeavour to interpret them as best I can.

My hunger and appetite, needless to say, were ever present with me. I would make the following distinction between the two:—Hunger is the craving sensation occasioned by the want of food, while appetite is merely the desire, normal or otherwise, to partake of food. My hunger began to show itself on the evening of the first day. Next morning, or twenty-four hours after food, it was distinctly well marked, and just how marked I presume that most of you know, having experienced as much at some period or other in your life. If you can just imagine this to continue over eight or nine days you will have a fairly good idea of what my hunger was. With the exception of a slight gnawing sensation experienced for a short time on the fourth day it did neither increase nor abate from the second day onward. However, let me not give you the impression that it was unbearable. It was not. On the contrary, so long as my mind was occupied with something else, even simple matters, such as reading the newspapers, or walking on the streets, etc., I would be wholly unconscious of it, but let it be unoccupied, even for a moment then this sensation would be dwelt upon and magnified.

With my appetite it was somewhat different. It gradually, though very slowly increased in intensity from the very beginning. Why was this considering that my hunger did not increase likewise? I can but suggest an explanation. We all know that there is a peculiar pleasure in taking food, particularly when it is taken under normal conditions. Being continuously cut off as I was from this pleasure there was an

ever-increasing effect of this privation upon me as time went on, leading to a gradual intensifying of my appetite.

During the fast I did not do any studying, nor had I any ambition to do so. I spent most of my time reading light literature; I felt quite capable of concentrating my mind for a short time on any subject, but to do so for any length of time was out of the question. To test my mental capacity during the fast, Dr. Gordon devised a series of adding tests. He had a number of sums, each of which contained a hundred figures, arranged in ten columns, with ten figures in a column, typewritten on separate sheets of paper. He noted the speed and accuracy at different times with which I could add up two of these sums.

The following table gives you the results of these tests:—

Date.	Speed.	Accuracy.
	Min. Sec.	Mistakes
1st Day before.....	5. —	None.
2nd "	5. 7	1
4th "	4. 15	1
7th "	4. 43	2
11th Day after.....	5. 15	None.

Throughout the fast I slept well, with the exception of a night or two, when I was somewhat restless. At the beginning seven hours a night were quite sufficient for me, but as the fast advanced I required eight, nine and even ten hours sleep. As a general rule I would retire about 11.00 p.m. and arise from seven to nine o'clock in the morning.

Often during the fast I noticed that if I changed my posture suddenly, particularly if I should rise up quickly from lying down, I would experience extreme dizziness, and at times became almost blinded for a moment or two.

If you want a true conception of its physical effects, the only way to get it would be to fast yourself. If you do not care to do this, I would point out that you must not think of hunger alone. or appetite alone, or weakness, or dizziness, or a peculiar sense of weakness in the abdominal region, or the mental incapacity to do extended work, etc., etc., but you must be able to weave all these sensations together in order that you may get a composite expression of them all.

I became much weakened during the fast, it is true, but considering the amount of exercise I took, I regard my strength as having held out remarkably well. I not only walked on an average five miles a day but I also underwent a series of daily physical exercises conducted by

Mr. John Long, Physical Director of the Montreal Amateur Athletic Association. It was not until the third day that I began to show any marked weakness, and then my knees seemed to be the weakest part. On the fourth day the weakness became more general and more marked, and on the fifth day as I moved about I was quite willing to lean on anything at times. I now began to make use of the railing in mounting stairways, etc. After this day I possibly became somewhat weaker but not much, really on the ninth day I thought there was a slight improvement in my strength, at least I moved about with less fatigue.

Mr. John Long, of the M.A.A.A. has the following to say:—

"I took the measurements of the experimenter at the beginning and at the end of his fast and they were as stated below:—

MEASUREMENTS.

		Before	After	Difference.
	Weight	140 lbs.	125 lbs.	15 lbs.
Chest	Contracted	34¾ ins.	33¾ ins.	1 in.
	Expanded	38⅛ "	36 "	2⅛ ins.
	Normal	36⅛ "	34¾ "	1⅜ "
	Thickness	7⅝ "	7⅛ "	½ in.
Waist		29¾ "	27¾ "	2 ins.
Arm	Fore	10½ "	10¼ "	¼ in.
	Upper	11⅛ "	10½ "	⅝ "
Leg	Calf	14⅛ "	13¾ "	⅜ "

He appeared to me a strong, well developed young man, of small stature.

The exercises that I administered to him were of a muscular, bending, and stretching nature, varied with slow, quick, and medium movements, accompanied with deep breathing, walking and running.

The time of exercising lasted about fifteen minutes a day, and towards the end of the fast I reduced this time.

The greatest change I observed was on the third day. He appeared dejected, had suddenly lost his alertness of movement, and, to use a slang expression was extremely "dopey." From this on, with the exception of the last day, he seemed to get slightly worse. On the final day, though brighter and happier looking, was no more alert in his movements.

One of the chief things I observed was that after exercising in a manner that kept his mind occupied in directing his movements, followed by a bath, he appeared and expressed himself as feeling much better."

With the assistance of Mr. Jacomb, Instructor in the McGill Gymnasium, I was able to make a series of strength tests, namely, lifting, gripping, and breathing tests. The following table will show you the results of these:—

PHYSICAL TESTS.

TESTS.		Day before Fast.	1st Day.	6th Day.	9th Day.	7th Day after Fast.
Lift..	Bent Back without Kness....	270	370	320	330	270
	Straight Back with Kness	475	515	540	540	460
Grip.	Right Hand	104	98	96	100	109
	Left "	103	98	89	88	90
Lung Capacity.....		230	228	234	235	212

This certainly reveals unexpected results. All I can say is that they were always done in the same manner, and each time I did my very best.

My weights, measurements, etc., as taken by Mr. Jacomb, may be found in the folowing table:—

MEASUREMENTS.

	Before 1st Day.	During Fast.			After 7th Day.
		1st Day.	6th Day.	9th Day.	
Weight.....	139.6 lbs.	137.3 lbs.	128 lbs.	125.9 lbs.	139.6 lbs.
Girth, Chest, Con.....	33.8 ins.	33 ins.	33 ins.	32.5 ins.	33.8 ins.
" " Exp.....	39 "	38 "	36 "	35.2 "	37.5 "
" 9th Rib, Con.....	31.8 "	29.7 "	28.5 "	28.4 "	29.5 "
" " Exp.....	36 "	33.7 "	32 "	32 "	33.5 "
" Waist.....	30.8 "	29.3 "	27.8 "	27.8 "	30.5 "
" Hips.....	35.8 "	34.3 "	33.2 "	34 "	35.8 "
" Rt. Fore Arm.	10.2 "	10.6 "	10.3 "	10.3 "	10.5 "
" Lt. Fore Arm.....	10.2 "	10.5 "	9.9 "	10.3 "	10.5 "
" Rt. Up. Arm.....	12.1 "	12.4 "	12 "	11.8 "	12.1 "
" Lt. Up. Arm.....	11.5 "	11.5 "	10.9 "	10.9 "	11.4 "
" Rt. Thigh.....	21.4 "	21.6 "	20.5 "	20 "	21.5 "
" Lt. "	21 "	21 "	20 "	19.6 "	21 "
" Rt. Calf.....	14.2 "	14 "	13.7 "	13.6 "	14.1 "
" Lt. "	14 "	14 "	13.6 "	13.5 "	14 "
" Neck.....	14.2 "	14.4 "	14.1 "	13.7 "	14.4 "
Lung Capacity.....	230	228	234	235	212

The physical examinations were made by Dr. A. H. Gordon. The lungs were of normal resonance and the respiratory sounds clear and vesicular throughout. About the only variation noted in the lungs was the change in the lower border of lung resonance. Anteriorly on the

first day it was at the fifth space, by the ninth day it had reached the sixth space. Posteriorly it likewise moved downward from the tenth to the eleventh rib. By the eleventh day after the fast, it had returned to its original position. The respirations per minute varied from twenty-one to twenty-four. Acetone was detected on the breath as early as the second day, giving it a peculiar sweetish odor.

The absolute dulness of the heart remained the same throughout: so also did the upper border of relative dulness, but there were some slight changes in the area of dulness to the left. On the first day it was 9 1-2 cm., or 3 4-5 inches out; on the second day it was 8 cm., on the ninth day 9 cm., while on the eleventh day after, it was again 9 1-2 cm. out from the mid-sternal line. The heart sounds were normal at the beginning, but as the fast advanced the sounds at the apex became feebler and the aortic 2nd higher pitched.

The lower border of the liver was palpable on the first day but was not at any time thereafter. Its vertical dulness in mid-clavicular line measured on the first day 8 cm., on the second day it was 7 cm., on the ninth day it was impossible to percuss out the lower border of liver dulness as it merged directly into that of the abdomen. On the eleventh day after the fast it again measured 8 cm.

The spleen was at no time palpated.

My temperature before the fast was normal, being between 98° and 99°F., but soon after it began to fall and remained low with the exception of but one observation throughout the fast. Roughly speaking, it ranged between 96° and 98°F. As soon as I took nourishment, however, it became normal again.

Indoors I was not conscious of lessened heat production but I was quickly made aware of the fact as soon as I went out into the cold; it was not very cold at that period but still I had great difficulty in keeping warm.

Dr. Gordon also made repeated examinations of the blood, the results of which may be found in the following tables:—

BLOOD EXAMINATION.

Dates	Red Cells	White Cells	H.G.	Sp. Gr.	Bl. Pr.
1st Day	6,020,000	7000	90%	.....	102
2nd "	6,020,000	10400	87%	.....	111
4th "	5,940,000	7800	95%	.....	112
6th "	6,710,000	8600	.....	1026	105
8th "	6,000,000	7600	.....	1031	.....
9th "	5,970,000	10200	90%	1021	107
6th " after	5,080,000	6600	80%	1043	102.5

Practically speaking there were, from time to time, but slight changes in the number of red blood cells. With the exception of a leucocytosis on the second and ninth days the number of white cells also varied but little. Perhaps the most marked change was found in the specific gravity of the blood. For some reason or other it was over-looked on the first two examinations. On the fourth day it was found to be but 1026; by the ninth day it had gone down to 1021 and by the seventh day after the fast it had risen to 1043.

DIFFERENTIAL BLOOD COUNT.

Dates	Poly-morph.	Small Monon.	Large Monon.	Transi-tional	Mast Cells	Eosino-phile
4th Day.....	68	22	6	4	..	..
6th "	60	30	7	..	..	3
8th "	55	18	23	..	3	..
9th "	59	32	9	2	1	..
6th " after	58	35	6	1	..	..

The work of the opsonic power of the blood, which was taken up by Dr. A. C. Rankin, may be diagrammatically represented in this chart.

It was unfortunate that thirty-six hours had elapsed before the first blood was drawn. However, even at that time it revealed an opsonic power of .98 (taking 1 as normal), which is regarded by authorities as being practically normal. Blood was withdrawn and examined daily and with but one exception it dropped gradually day by day, until it stood at .7 on the ninth day. The observation on the ninth day took place at 4 p.m., just two hours before taking nourishment. Another, made at the same hour two days later, indicated that it had risen to .8, while one made two days later still, or exactly four days after I began to eat, showed that the opsonic power of the blood had reached one or normal. I might also add that it remained at normal through several observations after that. The organism used was the Staphylococcus pyogenes aureus.

Varying opinions have been held regarding the bactericidal action of the blood during a fast. Canalis and Marpingo some time ago pointed out that starving pigeons lost their natural immunity to the infection of anthrax bacillus. In 1899 Metzer and Norris of Columbia University experimented on fasting dogs. They found that a five-day fast did not affect the bactericidal power of the blood of these dogs, tested with typhoid bacillus, in the slightest degree.

The examination of the urine and fæces was done by Dr. T. P. Shaw and Dr. A. L. Gilday. The following tables contain in a condensed form the results of their work.

The diminution in the quantity of urine was due to some extent to the loss of moisture by the skin during exercise and to the small amount of water taken throughout the experiments.

Although there was pronounced acidosis, sugar was never found in the urine.

Ewing and Wolfe in reviewing the literature on this question, say: "Studies of the metabolism of starvation by Luciana, Brugsch, and others, have shown that high proportions of ammonia nitrogen and acetone bodies are found in urine, when symptoms of intoxication are absent. In Brugsch's observations on the faster Succi, the proportion of urea-nitrogen was low, the ammonia was high and acetone and ali-

EXAMINATION OF FAECES.

	Before	During Fast.			After
	For 2 Days	5th Day	7th Day	9th Day	1st Day
Quantity*	56 Gms.	6 Gms.	10 Gms.	6.5 Gms.	22 Gms.
Consistency	Formed	Liquid†	Liquid†	Liquid†	Semi-Solid
Color	Yellowish	Dark	Black—	Black—	Yellowish
Fats	.784 Gms.	.108 Gms.	.74 Gms.	.188 Gms.	1.430 Gms.
Fatty Acids combined as Soaps	8.344 "	.690 "	1.42 "	.390 "	.506 "
Fatty Acids	1.512 "	.198 "	.32 "	.292 "	.814 "
Total "N" in Faeces	2.08 "	.285 "	.494 "	.482 "	.219 "
% of Fat	1.4	1.8	7.4	2.9	6.5
% of Fatty Acids	14.9	11.5	14.2	6.0	2.3
% of Fatty Acids combined as Soaps	2.7	3.3	3.2	4.5	3.7

* Dried Faeces. † Removed by Injection.

phatic acids were abundant, during the period of twenty-nine days when the subject's general condition was excellent, while under similar conditions, observed by Luciani, Succi was able to fence and run actively. Moreover, large amounts of acetone and aliphatic acids may appear in the urine on first day in healthy and fasting subjects. Likewise in diabetes and similar signs of acidosis without other symptoms, may occur, as in von Noorden's case."

"It thus appears that the occurrence of acetone, aliphatic acid and ammonia in excess in the urine when the food supply is deficient, means that the patient is burning his own fats and not necessarily that he is suffering from acid intoxication."

In my case the urea nitrogen was increased, this was no doubt due to the fact that previous to the fast I was living on a vegetable diet. When

* American Journal of Medical Sciences, May 1906.

ANALYSIS OF URINE.

	Before	During Fast.									After
	Average For 2 Days	1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	8th Day	9th Day	1st Day
Quality	488 c.c.	556 c.c.	313 c.c.	553 c.c.	623 c.c.	540 c.c.	514 c.c.	450 c.c.	440 c.c.	425 c.c.	500 c.c
Color	Pale Yellow Cloudy	Same	Same	Straw Cloudy	Straw Clear	Straw Clear	Straw Clear	Straw Cloudy	Dk. Straw Cloudy	Dk. Straw Cloudy	Straw Clear
Reaction	Acid	Acid	Acid	Acid	Acid	Acid	Acid	Acid	Acid	Acid	Acid
Sp. Gravity	1028	1026	1032	1029	1030	1028	1025	1028	1025	1025	1017
Sugar	None	None	None	None	None	None	None	None	None	None	None
Albumin	"	"	"	"	"	"	"	"	"	"	"
Acetone	"	"	Present	Large Quantity	Large Quantity	Large Quantity	Large Quantity	Large Quantity	Large Quantity	Present	Traces
Oxybutyric Ac	"	"	"	"	"	"	"	"	"	"	"
P_2O_5	1.24 Gms.	1.17 Gms.	1.47 Gms.	2.18 Gms.	2.78 Gms.	2.48 Gms.	2.23 Gms.	1.99 Gms.	1.8 Gms.	1.66 Gms.	.55 Gms.
Urea	13.66 "	13.9 "	11.2 "	22.1 "	22.1 "	24.8 "	17.9 "	20.2 "	19.3 "	19.1 "	16.5 "
Urea "N"	6.36 "	6.4 "	5.2 "	10.2 "	10.2 "	12.5 "	8.3 "	9.4 "	8.99 "	8.9 "	7.6 "
Ammon. "N"	.16 "	.11 "	.17 "	.56 "	.73 "	.75 "	.46 "	.36 "	.22 "	.08 "	———
Undetermined "N"	1.14 "	1.2 "	.89 "	1.53 "	1.37 "	1.25 "	1.25 "	1.56 "	1.62 "	1.14 "	———
Total "N"	7.66 "	7.71 "	6.26 "	12.29 "	12.30 "	14.5 "	10.01 "	11.32 "	10.83 "	10.12 "	9.15 "

I began to fast I had to live on my own tissues and therefore became a carnivorous animal. It has been found by other observers that urea nitrogen is increased in herbivorous animals by fasting. The phosphoric acid was increased following very closely the rise and fall of urea nitrogen. This was observed also in a case of fasting during hypnotic sleep reported by Hoover in Sollomann."

On the day before the fast, 56 grammes of dried fæces were passed, representing two days. During the nine days of the fasting period 22.5 grammes were washed away from the bowel. In the movement, during the first day after the fast 22 grammes of dried fæces were passed. During the fast the colour resembled meconium and contained some proteid material, fat, fatty acids, and soaps, etc.

The loss in body-weight may be represented thus:—Total loss in body weight (14.2 lbs.), 6440 gms. Total "N" in fæces, 1.26 gms.* Total "N" in urine, 95.34 gms. Total "N" in urine and fæces 96.6 gms. "N" estimated in albumin, 603 gms. "N" estimated in muscle, 2880 gms. Maximum amount glycogen consumed estimated at 200 gms. Totals 3080 gms. Loss in fat, water, etc., 3360 gms.

Now that the fast is over, whether you will regard me as being unwise or not for attempting such an experiment I do not know. I might have been. However, I am certain that I have suffered no ill effects from it. As for the fast itself I think that it has not been wholly unprofitable. If it has done nothing else it has shown that any young person with a good healthy constitution, may abstain from taking nourishment, for a few days at least, without any serious results and I am sure you will have not a few cases in your practice, particularly those with certain digestive troubles, where a fast of one, two or three days, or even more, would be the very best treatment that you could devise. It, perhaps, would not be wise to fast for too long a period, for if the opsonic power of the blood would go down steadily as it did in my case, one possibly might contract some infectious disease.

Appetite for food is one of the strongest appetites that we are called upon to control, an over-indulgence of which is perhaps one of the greatest curses of mankind. The very fact that one can abstain from taking food for a short time without injurious effects, gives one and all of us an excellent opportunity to rigorously decide who is to be master, Appetite or Self.

Again, we generally appreciate the good things of life only when we are cut off from them, and if for some reason or other we are deprived of them, we would learn and learn well to be more thankful for our

* Journal of Experimental Medicine, Vol. 11. 1897.

** 4.38 gms. of fat were found in faeces.

usual bountiful surroundings. I never was more thankful in all my life than I was at the close of the ninth day of fast when I was privileged to partake of a little food. I candidly admit that there is not very much pleasure in being deprived of it.

As to the direct results of the fast I can truthfuly say that I never was on a higher plane, either physically or mentally, than I was for the first few weeks after the fast.

TRAUMATIC ASPHYXIA.

BY

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"Compression pneumonia"—a term, I believe, first used by Litten—is not uncommon in cases of crushing injuries to the thorax, but cases of "traumatic asphyxia" are sufficiently rare to make the following case worthy of reporting.

H. B., male, aged twenty, was admitted to the Montreal General Hospital to the service of Dr. J. M. Elder, on April 12th, 1907. He was an ambulance case and was admitted directly after the accident from the Longue Point Locomotive Works, where two heavy iron pillars had fallen on him crushing his chest and rendering him unconscious for a brief period.

On admission it was noted that his face, neck and the upper portion of his thorax in front were markedly cyanotic; there was free bleeding from both ears, none from the nose or pharynx and he showed extensive subconjunctival hæmorrhages of both eyes. His mind was clear, he showed little evidence of shock and was suffering pain in his head, chest and legs. The skin of the face and thorax was dusky in hue and was abraded in places. No fractures were made out though the symptoms present pointed to fracture of the base of the skull. There was a tender area over the lower dorsal region with slight skin abrasions and the slightest movements of his legs gave rise to great pain. There was also tenderness in both groins and in the perineum to the right of the median line behind the scrotum was a punctured wound with lacerated edges, not involving the urethra. The temperature was 101°, pulse 98, respirations 24.

An ice cap was applied to his head, the perineal wound dressed and it ultimately healed without suppuration. The cyanosis, which was

Read before the Montreal Medico-Chirurgical Society.

altogether limited to the face and neck, not affecting the extremities, persisted and was out of proportion to the rate of respiration. On the day following admission the temperature, which had fallen to 98 1-5°, again rose to 101 3-5°. Later the respirations became increased in frequency and on April 15th, three days after admission, he showed undoubted signs of right-sided pulmonary consolidation. He had no chill, herpes, or sudden pain in the thorax. His condition grew worse, though not alarming, and on the 21st of April,—nine days after injury and six days after the onset of signs of pulmonary consolidation—aspiration in the right 8th space in the scapular line revealed sero-purulent fluid, a culture from which gave pneumococci.

Thoracotomy was performed by Dr. Elder on the 26th of April under chloroform anæsthesia and the patient nearly died on opening the pleura; he rallied under stimulation, improved for a period but finally died on May 8th with signs of consolidation and pleural effusion on the left side also. At operation the right lung was collapsed. Serous fluid as well as thin pus was present in the pleural cavity; the wound drained well. During the last week he had frequent attacks of dyspnœa and cyanosis with weak pulse and attacks of faintness, suggesting pulmonary thrombosis or emboli.

The autopsy, performed by Dr. Percy White, revealed some interesting conditions, and to him I am indebted for assistance with the pathological portion of this report. There were innumerable small, confluent, sub-pleural hæmorrhages; no ribs were fractured; the right lung was found completely collapsed, the left partially so, especially the lower lobe. There were several abscesses in the right lung, a large thrombus in the pulmonary artery in one place, and three or four patches of greyish white consolidation in the middle and lower lobes. Pulmonary thrombi were also found in the left lung and one large abscess and several areas of subperitoneal blood extravasations. The left prostatic veins were thrombosed and the thrombotic condition extended to the internal iliac vein, which, however, was not completely occluded. There was no evidence of pus about the healed perineal wound.

There was no fracture of the skull and the membranæ tympani were intact. The eyes showed hæmorrhages into the orbital fat, subconjunctival hæmorrhages and a few small ones into the retinæ. A culture from the heart's blood showed the staphylococcus aureus.

The subpleural, subconjunctival hæmorrhages, those into the retinæ, from the lining of the external auditory meatus, and the cyanosis of the face, neck and upper thorax, make up a clinical picture that strongly resembles those uncommon cases of "traumatic asphyxia" reported by

Perthes, Beach and others. They are produced by crushes inhibiting respiration for an appreciable length of time, and people crushed to death in crowds and during panics show similar findings to those noted in this case. Compression of the abdomen, according to Keen, has produced traumatic asphyxia also.

The cyanosis of the skin is not due to hæmorrhage into the subcutaneous tissues but is really due to a stasis of deoxygenated blood in the capillaries. and it is considered by Beach and Hueter that the reason for its limitation to the facial and cervical regions is due to the lack of competent valves here.

The infective phlebitis, thrombosis and septic emboli—for cultures of the staphylococcus aureus were obtained from the thrombi in the prostatic veins—evidently began at the perineal wound and produced the septicæmia and pulmonary infarcts which at once broke down into abscesses. At the same time there were small areas of pneumonia in the lungs and the growth obtained from the aspirated fluid was that of the pneumococcus.

Demuth claims that cases of so-called "compression pneumonia" are due to absorption of blood extravasations into the alveoli and of decomposition products, rather than to pneumococcus infection and consequently are not cases of true croupous pneumonia.

The patient recovered from the primary traumatic asphyxia and died of sepsis obtaining entrance by the perineal wound though an apparently clean one.

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Annals of Surgery, April, 1904—Beach and Cobb.
Keen's System of Surgery, Vol. 1, p. 909.
System of Surgery, von Bergmann, Vol. 11.

The control depot receives milk from 76 affiliated dairies, and these from 5,222 individual producers. The sources of milk supply are inspected under the instructions of the Government Inspector of Dairies. Stables, the stock, and the cleanliness of the barns are criticised, as well as the feeding of the cows and milking. Veterinary inspection of the cows is made. The milk is delivered warm from the cows to a local depot, conforming to modern requirements, and is here cooled, tested, and purified. The amount of impurities when the milk leaves the dairies is small, but in the control depot in Vienna it is again purified by straining through close-meshed gauze. It is then pasteurized at 70°C to destroy the germs without changing the milk physically or chemically. After pasteurization a part of the milk is centrifuged for cream. The milk for children is sterilized at 102°C.—*Medical Record*, June 15, 1907.

THE

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THE NEW CHAIR AT McGILL.

We take advantage of the absence of Dr. Andrew MacPhail, who is abroad, to offer him on behalf of this *Journal* and its editorial staff what we might scarcely have gracefully expressed in these columns had he been in his usual position as editor, namely our hearty congratulations upon his appointment to the chair of Medical History in McGill University: the college, too, we congratulate on adding to its staff one who has proven his place in Literature so well as has the author of "Essays in Puritanism" and "The Vine of Sibmah."

THE EXCLUSION OF TUBERCULOUS CATTLE.

There was a report circulated in the press lately to the effect that one hundred and fifty cattle, which had failed to pass the tuberculin test, had been shipped from the vicinity of Quebec to Montreal for dairy purposes. We learn on the best authority that there is no truth in this rumour, and we are glad of it. It must be admitted that at the present moment, there is no municipal law to prevent it, but this will not be so for long, for at the present time, the sanitary by-laws are being revised, and it is contemplated to include in these one which will prevent the use of any but tuberculosis-free cattle for the supply of milk to the city. It will be a difficult matter to make the inspection of all these cattle efficient, as the present milk-supply is brought from a wide area of country, but the existence of the by-law and of the inspection will be a long step forward.

THE SEIZURE OF SPOILED FOOD.

In these days of progress, when over-tired railway employees who fall asleep and thereby cause wrecks are sent to jail, it is surely necessary to put upon trial any person or firm who endeavours to let loose upon the public fifty thousand tins of salmon, much of which is proven to be dangerous to human life, if used as food. We personally know none of the persons concerned, and have at our disposal only the statements made by the daily papers, statements which we have not seen contradicted, and may therefore assume to be true. A shipment of 50,000 tins of salmon was lately seized in Montreal, many tins were examined, and it was destroyed. The persons in authority in that particular branch of the city management did not take any legal measures against the responsible ones, and we have not yet been able to see any good reason for their not doing so. It may be urged that no one knew of the food having gone bad, but it is stated that some of it, at least, bore evidence of having been re-tinned: if this be so, the men who did it should be pursued with the same intensity of purpose to find, convict and punish that is exercised when an ordinary above-board murder is committed. The statement that it was not possible to discover the guilty persons is so puerile that it scarcely needs comment: if a citizen, for example, harbours in his house goods that have been stolen, the law holds that citizen, at least until it knows all that he knows about the case. Why were the consignees of this tinned salmon not held responsible until the law knew all that they knew, that is, until every bit of the condemned material had been traced. Fifty thousand cans are not easily lost sight of, and it is not possible that any one can carry them around in his

pocket: where the clue gets faint, as to the origin of any special shipment of goods, or where books are not forthcoming, the strong arm of the law has a good deal of power in shaking out information that might otherwise be hidden.

Let us suppose things had turned out differently; if, for example, twenty or fifty persons had been poisoned by this shipment of goods, would we fold our hands and say nothing? Is the person responsible for this criminal mistake in the state of the salmon (to put the lightest interpretation on it) the less responsible, because the food inspector was alert, and stood between him and the public? Not at all. The city of Montreal may not be able to have ideal pavements or clean streets or thoroughly-trained firemen, but surely it can have a proper degree of punishment meted out to its law-breakers. It is well enough done to prohibit the egg-cup-full-of-ice-cream-for-a-cent, because the vendor exposed his customers to a possible danger: fifty thousand times more necessary is it to punish the man or the firm who exposed customers to this certain danger, on so great a scale. We believe we voice the opinion of the medical profession, who may be supposed to understand the gravity of the situation, when we say that a grave failure of justice occurred when this offence was allowed to go unpunished. We wish it clearly understood that there is in all we have said no personal animus against the local firm in question: they may be entirely innocent of wrong-doing in the matter: yet they should be held responsible until such time as they are able to show that the real responsibility lies elsewhere.

THE CONTROL OF SYPHILIS.

The problem of the control of syphilis and other veneral diseases seems no nearer its solution than ever. The repeal of the contagious disease act by Parliament in 1886, when as Fournier's remarks "prostitution and with it syphilis regained its freedom throughout the British Empire" and the startling inefficiency of state control in Paris, where according to Leloir 13-16 percent of the male population are affected with syphilis, are evidences of the fact should any be needed. Nevertheless, it is our duty to continue this war to the end: by efficient state control, by instruction to those exposed, by careful and prolonged treatment of the infected and by the arousing of public interest and effort by means of societies, etc. Such is the impression obtained in perusal of Prof. Fournier's papers collected and translated by Marshall, late of Blackfriars and the London Lock Hospital. While the picture drawn is a dark one we cannot but admire the energy of Fournier and

the Society for Sanitary and Moral Prophylaxis in their attempt to combat the evil. This they have done along the above lines, wide spread instruction to young men and students, instruction in the army, instruction to the public in general with various suggestions as to municipal and state control and the carrying out of efficient treatment in hospitals —not prisons—of infected prostitutes. And yet *cui bono?* Are we any better off to-day than in the days of the 15th century when the pox made it first appearance in Europe and was regarded as a Divine punishment and in consequence refused treatment? Happily for the immediate present Montreal has little or no recent syphilis but we do not know what a day may bring forth and such problems as the above deserve our closest inspection and consideration. Would that we could suggest a cure for the malady, this at least we may say. It is no class problem but one to be dealt with by our fathers and mothers, our preachers and priests, our city fathers and law-makers and lastly, perhaps, mostly our own profession.

Dr. John L. Todd, late of the Liverpool School of Tropical Medicine has been appointed Associate Professor of Parasitology: the creation of the chair, we venture to think is timely in view of the increasing importance of the subject, and we are glad that no applicant could present so good claims as one of the graduates of McGill. Dr. Todd's name and work are too well known to require any introduction to those who have even the most superficial knowledge of the progress of the science of parasitic diseases. The same meeting of the Governors of the University at which these appointments were made also arranged the redistribution of the professoriate of surgery. Dean Roddick, whose long and painstaking services in the chair of Surgery and previously in that of Clinical Surgery date back for thirty-two years, seventeen of them in the major position, retires, and Drs. James Bell and George E. Armstrong are jointly appointed, each with the title of Professor of Surgery and Clinical Surgery. Dr. Roddick has earned repose from the onerous duties of the head of the surgical department, and we wish him many years in which to enjoy it.

CANADA MEDICAL ASSOCIATION.

Arrangements have been completed for the Annual Meeting of the Canadian Medical Association in Montreal on September 11, 12 and 13. The authorities of McGill University have placed the University buildings at the disposal of the Local Committee of Arrangements and it has been decided to have the General meetings of the Association held in the Molson Hall, the Medical Section in the lecture room of the

Redpath Museum, and the Surgical and Pathological Sections in the lecture rooms of the Arts building.

The President's address for which the first evening, September 11th, is reserved, will be delivered in the large hall of the Students Union and will be followed by a reception to the visiting members of the Association and their friends. The Students Union is situated on Sherbrooke street, opposite the University grounds and is admirably suited for such a function. On the evening of September 12th there will be a Smoking Concert in the Victoria Rifles Amoury. A garden party, golf match, and drives to fill in the afternoons after the business of the sections has been concluded, have also been planned.

The staffs of the various city hospitals have arranged to give clinics in the hospital theatres each morning at 8.30 at which members will have an opportunity of seeing rare and interesting cases in the service of the hospitals.

"TRES FACIES HABET MEDICUS."

The following is one translation of the above found in Timothie Kendall's Flowers of Epigram published in 1577.

Three faces the Phisition hath
First as an Angell he
When he is sought: next when he helpes
A god he seems to be:
And last of all when he hath made
The sicke diseased well,
And asks his guerdon, then he seems
An oughly Fiend of Hell.

Reviews and Notices of Books.

MODERN MEDICINE. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by WILLIAM OSLER, M.D., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal. Assisted by THOMAS MCCRAE, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. In seven octavo volumes of about 1,000 pages each; illustrated. Volume I.

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The first volume of the system known as Modern Medicine has appeared, and in reviewing the initial instalment of such a work, one feels called upon to pronounce a kind of prologue. Tempted one is, at first, to say that no pressing need exists at the present day for another large system of medicine, yet it is but justice to hear all the sides of the question stated; and we think that Professor Osler's apologia is perfectly adequate: his standpoint, perfectly clear to those who know him personally, will become evident to others if they accept what he has said in the last few pages of his deeply interesting and forceful introduction: "The Evolution of Internal Medicine." What Professor Osler there states in his creed; a creed that he has believed practised and preached unceasingly—which is embodied in the idea, nay, the conviction that conscientious work and study by the practitioner are the basic qualities of medicine, as of any other art or science. With these, ultimate success, in its highest sense, and the advancement of knowledge are inevitable . Recognizing this, the editor has not hesitated to name as his co-laborers many men of comparative youth, many of whom have come under his personal influence: thus we may be assured that this system will at least be written in Profesor Osler's own spirit, and from this very fact it may safely be augured that the book will not fail by the lack of painstaking effort. It will not be surprising, if a medical world, greedy of Professor Osler's own writings, should think that he himself writes too sparingly, but the prospectus issued in advance, has on this point disarmed criticism, if not complaint. The article referred to above, "The Evolution of Internal Medicine," is the only one in the present volume from Professor Osler's pen, and it is a truly delightful, though brief, contribution: the title describes it, and sections V, VI & VII contain, as a kind of addendum, what we have previously spoken of as the editor's creed: forcible, terse, its careful diction does not conceal the enthusiasm of the man who has a message, and we regret that space forbids quotations therefrom. Pages xxix to xxxiv if properly digested and assimilated will, we venture to think, be the most useful half-dozen pages in this, or any system of medicine.

Part I, consisting of Professor Adami's article upon "Inheritance and Disease," is an excellent contribution to the literature of Heredity, a subject on which the author has studied long and thought well. The two historic theories are discussed and a physico-chemical theory of

inheritance is propounded in accordance with the present day knowledge of physiological chemistry.

Part II, by Alfred Gordon, M.D., of, Jefferson Medical College, Philadelphia, deals with diseases caused by light-rays, electricity, concentration and rarefaction of atmosphere and heat and cold. Part III, the diseases caused by chemical agents, lead, arsenic, mercury, etc., and commercial gases, is written by Professor Edsall of the University of Pennsylvania, Philadelphia. Both these parts are necessarily much compressed, but present adequately a large amount of information.

In Part IV the opening chapters by Professor Lambert of Cornell University Medical College, New York, on alcohol, opium and cocaine are intensely interesting and well written: the writer speaks favourably of the treatment of chronic alcoholism advocated by McBride of Toronto. Food poisons, by F. G. Novy, of Ann Arbor, are dealt with also in a very interesting way, and comprise many different forms of intoxication. The chapter on "Snake Venoms," by Dr. Hideyo Noguchi, of the Rockefeller Institute, is again of much interest, if necessarily more technical than the preceding ones. "Auto-intoxication," by A. E. Taylor of the University of California, San Francisco, is a large subject, and a difficult one, which excuses the slight confusion that is suggested by the many diverse paragraph-headings. That Professor Taylor himself realises this confusion is very evident, and so we may suppose that the degree of compression required has imposed on him the necessity of treating , side by side, somewhat diverse subjects.

Part V, consisting of the diseases caused by vegetable parasites, other than bacteria, viz., actinomycosis and aspergillosis, is written by J. H. Wright, of Harvard. The term Nocardiosis will be new to many: it signifies the disease caused by various forms of the genus Nocardia, which are closely related to actinomyces but not identical with it. Blastomycosis deserves fuller mention than it receives, but perhaps the manuscripts of the article antedates the recent series of cases.

Part VI deals with the diseases caused by Protozoa, and is rightly prefaced by a section on the Protozoa from a biological standpoint by Profesor Gary Calkins, of Columbia, which is clear and brief, and a section on "Mosquitos" by Dr. L. O. Howard, Chief of the Bureau of Entomology, Washington. "The Malarial Fevers" are dealt with by C. F. Craig, of the U. S. Army, in a good article of sixty pages, with the necessary illustrations of the parasites. J. W. W. Stephens, of Liverpool, in the article on "Black-Water Fever" consider it a sequent of malaria plus quinine. Col. David Bruce writes very well on

Trypanosomiasis, incidentally relating the interesting circumstances connected with his own discovery in Tsetse fly disease in Zululand. He does not seem to have given a fair share of mention to the work of the Liverpool school in the study of Sleeping Sickness, but perhaps this is from inadvertence: the paragraph on prophylaxis is not adequate. In amœbic dysentry by R. P. Strong, of Manila, the text is excellent, but the plates are scarcely useful

Part VII deals with the animal parasites, and the name of C. W. Stiles, of Washington, as its author guarantees its quality: his treatment of the subject is quite exhaustive.

Part VIII is a volume in itself, dealing with nutrition, by Professors Chittenden and Mendel, of Yale, who are known as masters on the subject of Metabolism.

In the final part of the volume, T. B. Futcher, of Baltimore, deals with "Diabetes mellitus and insipidus." In the latter, he points out the frequent co-existence of syphilis. On Gout, his next subject, Dr. Futcher is an acknowledged authority. Obesity is written by J. M. Anders, of Philadelphia, and Rickets by G. F. Still, of London, while Scurvy is from the pen of Robert Hutchison, of London. The constitutional diseases, in this part, appear to us to be done in absolutely first-class style. A full index of the volume follows.

As a whole, we think there can be little but praise offered to the first volume of Osler's system.

Surgical Diagnosis. By Daniel N. Eisendrath, A.B., M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois. W. B. Saunders & Co., 1907.

Without prejudice to the forelying work, it may be said that the perfect book upon surgical diagnosis is still lacking. It has always been a question in the reviewer's mind whether it was really possible to write satisfactorily upon diagnosis as a separate, or rather separated, branch of medicine. Its dependence upon pathology in its broadest aspects, upon physiology and anatomy as well as upon symptomatology is so great that if these relations be given due consideration, the work must become a large treatise, and it is then little more than the ordinary text-book turned backwards; on the other hand, when these relations are not given proper consideration, it takes on too much the character of the mere catalogue.

Eisendrath's work escapes these objections perhaps better than any other that we know of on the subject, save Albeth's small book, which is now slightly out of date. Taking it as a whole, one may say that its

excellence lies in the description of the mechanical means of making a diagnosis, and its lack in the correlation of pathological lesion to clinical phenomena.

The various chapters are given a fairly even consideration. That upon head injuries is more up to date than anything yet written in books of this class; yet, considering the very great importance of the subject and the general lack of proper acquaintance with it on the part of student and practitioner, it is still decidedly insufficient. Here especially is it necessary to bring in a recapitulation of the underlying physiological facts.

The chapter on the abdomen is good on the whole; but one misses a consideration of abdominal pain from the general standpoint, its causes, and its broad relations to visceral disease.

By all odds the best chapter in the reviewer's opinion, is that upon the injuries of bones and joints. The book is especially rich in illustrations; and it is just in this department of Medicine that illustrations are most valuable.

The last chapter deals with special diagnostic methods of examination, such as those of the blood, Wright's opsonic theory, and in particular the late work upon renal function, this last by Kolischer, of Chicago. All these are good so far as they go, but are too cursorily treated.

The illustrations deserve a word to themselves. There are 482, of which 15 in colour, all original. Originality is not always a merit. Yet these are on the whole good; some are really excellent; most are useful; and some are entirely superfluous. Those in colour, speaking generally, are crude, even misleading, affairs.

The lack of bibliographical references, in a book of 776 pages, is a sad lack, though common enough in American publications, especially those of the Western States.

In other respects, the work is entirely commendable.

EDWARD ARCHIBALD.

TREATMENT AND PROPHYLAXIS OF SYPHILIS. By ALFRED FOURNIER, Professor of the Faculty of Medicine, etc., Paris. Translated by C. F. Marshall, M.D., F.R.C.S., late of Blackfriars and London Lock Hospital. Rebman Ltd., London and New York.

It is a noteworthy fact, as Marshall himself remarks, that up to the present few of Professor Fournier's books have been translated into English. Traitement de Syphilis—the second edition of which was published in 1902 and which has since been revised and enlarged is a book with which everyone who clams a knowledge of syphilis should be familiar. Few books on any subject are more interesting reading and

none place more clearly a mass of personal experiences extending over many decades of a large private practice. To this is added experiences from the clinics of the famous Hospital St. Louis and other Parisian Hospitals whence the names of Ricord and Dupuytren, through Fournier's association, are brought into close relationship with the present.

Dr. Marshall, himself an author and no mean authority on venereal disease has translated the work so that we venture to say we lose none of the good things of the original. One may actually read the volume without being made aware of the fact that he is dealing with a translation. The original is not a new work but nevertheless fills a space in English medical literature. Naturally we miss the discussion of changes which recent discoveries in microbiology demand but the fundamental laws of treatment and their raison d'etre, the fruit of an immense experience, are here as in no where else we know.

To this volume Messrs. Rebman have added a series of papers read by Fournier from time to time before different societies which Dr. Marshall has collected and edited under the title of "Prophylaxis of syphilis." A more thorough broad-minded view of the situation of things as they exist in all large centres to-day would be hard to obtain.

To summarize "The Treatment of Syphilis" is a difficult undertaking. Mercury is the standby which we must never let go and which we should use much as the world has used it but *more faithfully, more intelligently and more extensively*; while ingestive methods and inunction play the main role, subcutaneous medication and research for certain refractory and severe cases and the use of iodides receives the strongest support. Serum treatment is occasionally of service. Lastly, the prognosis depends on the treatment and is consequently worse in some and better in other respects than we may have thought. From a private practice where cases have been under his observation 30 and 40 years he can speak positively in these matters. A favourable outcome demands treatment of from 3 to 4 or more years. R. P. C.

INFLAMMATION, an Introduction to the study of Pathology, being the reprint (revised and enlarged) of an article in Professor Allbutt's "System of Medicine," by J. GEORGE ADAMI, M.A., M.D., F.R.S., Sometime Fellow of Jesus College, Cambridge, Professor of Pathology, McGill University, Montreal. London, MacMillan and Co., Ltd., 1907. Canadian agents, The MacMillan Co. of Canada, Ltd., 27 Richmond street West, Toronto. Price, $1.50 net.

Professor Adami's article upon Inflammation in the 1896 and 1905 editions of Allbutt's Medicine is undoubtedly the most widely known

and quoted article in English upon that subject, and the service it has rendered to Pathology is very great, especially when it is stated that the views there expressed were in 1896, not universally accepted; more than a little did those very views extend themselves, and they are the accepted ideas of to-day. The present volume is but an amplification of that article, with the addenda rendered necessary by ten years progress. It is in no small degree, a cause of congratulation to the author, that his previous article, written at a time when there was much confusion in our conceptions of inflammation, should stand practically unchanged after ten years. It is not possible here to review this essay in any distinctively critical way, because, influencing pathological views at large as he has, it is scarcely likely that Professor Adami would fail to dominate pathological views at home: therefore we can but say that the reviewer finds himself in perfect accord with the general idea of the work. He can, however, point out certain additions such as references to the Opsonins, and to the hypostatic treatment of inflammation, and especially the views put forward in the chapter upon the principles of treatment, which seem to be not only logical but strikingly original; these views appear in the author's article on Inflammation in Keen's Surgery. The volume is a compact octavo of 240 pages, clearly printed, adequately indexed, and contains a full bibliography of more than two hundred references.

THE DIAGNOSIS AND MODERN TREATMENT OF PULMONARY CONSUMPTION, WITH SPECIAL REFERENCE TO THE EARLY RECOGNITION AND THE PERMANENT ARREST OF THE DISEASE. By ARTHUR LATHAM, M.A., M.D., Oxon., M.A., Cantab., F.R.C.P., London Third edition. London, Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden, 1907. Price $1.50. Canadian agents, J. A. Carveth & Co., Ltd., Toronto.

Those who know Dr. Latham's book in previous editions will remember that it is a treatise which deals especially with the treatment of the disease, by one who is well qualified to speak. The author wrote the Prize Essay on the erection of the King Edward VII Sanatorium; he is a physician at St. George's and assistant physician at the Brompton Chest Hospital.

In the matter of opsonic work in the diagnosis of tuberculosis, Latham takes a conservative standpoint, and states that he has not yet obtained any positive assistance from it. In the treatment of the disease, he considers, like Trudeau, that tuberculin is a decidedly effective agent, but does not believe that the use of it should be regulated by the opsonic

index. He believes also, in the use of Koch's old tuberculin for diagnostic purposes in suitable cases, that is, where none of the well-known contra-indications exist.

One of the most interesting parts of the book refers to exercise and work performed by patients who have partially recovered from the disease. The importance of this cannot be over-estimated, as in the future it may be expected that colonies for tuberculosis patients under national supervision may thereby provide some commercial return for their treatment. The merest beginning has been made at Frimley Sanatorium, and no firmly-based facts are yet to hand, but the attempt is being constantly prosecuted. The principles of open air treatment at home, the treatment of special symptoms, the question of marriage of tuberculous patients and many other interesting things are discussed. We have great pleasure in heartily commending Dr. Latham's third edition.

THE ESSENTIALS OF HISTOLOGY.—Descriptive and Practical, for the use of Students. By E. A. SCHAEFER, L.L.D., Sc.D., F.R.S., Professor of Physiology in the University of Edinburgh, etc. Seventh edition. Lea Bros. and Co., Philadelphia and New York.

This well-known text-book more than maintains its former high standard of excellence. The principal advance over former editions is in the account of the nervous system to which about one-third of the book is devoted. There are well selected illustrations on practically every page and for the first time many of them are coloured. The letter press is eminently adapted to the needs of the undergraduate. While not exhaustive it contains for the specialist a well digested and reliable summary.

One slight omission noted was in the description of the auriculo-ventricular bundle. No mention is made of the network of nerve fibres whose presence there is of some interest.

The paper is of good quality and thin enough to allow five hundred pages to be compressed into the space usually required for two hundred.

We recommend this book without qualification.

W. S. M.

A TEXT-BOOK OF EMBRYOLOGY. By JOHN C. HEISLER, M.D., Professor of Anatomy in the Medico-Chirurgical College of Philadelphia. Third Revised Edition. Octavo volume 432 pages, with 212 illustrations, 32 of them in colors. Philadelphia and London: W.

B. Saunders Company, 1907. Cloth, $3.00 net; half morocco, $4.25 net. Canadian agents, J. A. Carveth & Co., Toronto, Ont.

Professor Heisler's third edition contains a good many additions since the last revision which was made in 1901, and followed by several reprintings. Fifteen or more sections of the book have been completely revised in the present edition. The opening chapter of forty pages is really an excellent setting-forth of the necessary information on the sexual elements, on ovulation, menstruation, and fertilization. It is brief, and bears evidence of much care in the process of evaporation, the essentials remaining in a concise form. Segmentation, the formation of the germ layers and the early differentiation of the embryo are very clearly given, as are also the formation of the fœtal membranes. We are glad to see that the most recent views on the decidua and the embedding of the ovum are set forth, because we have had occasion to criticize some very recent books on this very point. When the author comes to deal with the changes in the external form of the embryo, the brevity that is necessary tasks a writer to the utmost, and there is much that will make difficult reading for the student who has not studied serial sections, but, knowing the difficulty of compressing a very great amount of material, we have no criticism to offer upon the way it has been done.

The development of the various systems of the body makes plainer sailing, and here, in general, one notices fewer modifications, although the proper addenda are introduced, and the embryology of some organs has been re-written. The illustrations are numerous and useful and the printing careful and clear, and we can cheerfully recommend Professor Heisler's third edition.

A Text-Book of Ophthalmic Operations. By Harold Grimsdale, M.B., F.R.C.S., and Elmore Brewerton, F.R.C.S. Published by Kegan Paul, Trench, Trubner & Co., London, 1907.

In this volume the authors have covered the whole field of Ophthalmic Operations in a very acceptable manner. The descriptions of the various procedures are clear and the accompanying illustrations, though somewhat sketchy, are quite sufficient.

The writers might, perhaps, with advantage have more strongly emphasized the operations which they had found through personal experience to be the best; and omitted certain procedures, for instance, Critchett's subconjunctival tenotomy, which are now generally regarded as obsolete.

The printing and paper are good, but the binding is insufficiently strong. These defects, however, do not seriously mar an otherwise excellent treatise which will prove especially useful to those who are unable to consult the continental works in this field.

W. G. M. B.

A Manual of Obstetrics. By A. F. King, A.M., M.D., L.L.D. Tenth Edition revised and enlarged with 301 illustrations in text and three plates. Published by Lea Brothers & Co., Philadelphia and New York, 1907.

This most popular manual of Obstetrics has been rejuvenated and brought up to date. The chapter on "Fecundation and Nutrition of the Embryo" has been practically re-written and the subject is extremely well presented, the diagrams being exceptionally good. Any student making a careful study of this chapter cannot fail to have a very fair comprehension of his work.

The chapters on Pelvic Deformity, Placenta Prævia, and Puerperal Septicæmia, have also been re-written as well as several portions dealing with obstetric surgery.

It is to be regretted that the author fails to describe the operation of Pubiotomy. It is probable that the Tenth Edition will be no less popular than its predecessors.

Medical News.

THE GRADUATES OF 1907.

The following gentlemen, 73 in number, were admitted to the degree of M.D., C.M., at the recent Convocation of McGill University.

Arthur, J. R., Perth, Ont.; Bailey, G. W., Fredericton, N.B.; Baird, W. S., Lucknow, Ont.; Benvie, R. M., Salt Springs, N.S.; Bernstein, D. H., Montreal, Que.; Blanchard, H. B., Mallorytown, Ont.; Bray, D. G., B.A., Sherbrooke, Que.; Brydone-Jack, F. W., Vancouver, B.C.; Budyk, J. S., Montreal, Que.; Coborn, Josiah, Newton Robinson, Ont.; Covey, H. W., Everett, Mass. U.S.A.; Crowe, H. S., Central Onslow, N.S.; Dearborn, H. F., Malden, Mass., U.S.A.; Denovan, B., Montreal, Que.; Dixon, J. A., Almonte, Ont.; Edwards, W. F., Smith's Falls, Ont.; Eggert, C. A., Atlin, B.C.; Enright, W. E., M.A., Sherbrooke, Que.; Farris, H. A., White's Cove, N.B.; Fraser, S. B., Richmond, Que.; Furse, W. J., Westmount, Que.; Gabie, W. G., Kazabazua, Que.; Garcelon, W. S., A.B., Lewiston, Me.; Girvan, R. G., Rexton, N.B.;

Graham, D. W., Arundel, Que.; Gray, W. E., Campbellton, N. B.; Grier, R. T., Montreal, Que.; Hawkins, Z., B.A., Sussex, N.B.; Healy, J. J. Smith's Falls, Ont.; Holbrook, R. E., Minto, Man.; Holman, W. L., B.A., Summerside, P.E.I.; Hunter, J. D., Victoria, B.C.; Huycke, A. H., Warkworth, Ont.; Keay, Thos., New Glasgow, N.S.; Lake, W., Ridgetown, Ont.; Landry, A. R., Dorchester, N.B.; Lannin, G. E. J., South Mountain, Ont.; Locke, E. E., B.A., Westmount, Que.; Logie, F. G., Chatham, N.B.; MacLachlan, W. W. G., Guelph, Ont.; MacNab, N. A., Montreal, Que.; McCann, J. H., South Framingham, Mass., U.S.A.; McCowen, G. R., St. Johns, Nfld.; McLennan, A. L., B.A., Lancaster, Ont.; McPhee, T. J., Courtney, B.C.; Morgan, J. D., B.A., Montreal, Que.; Muir, W. L., B.A., Truro, N.S.; Noble, E. C., Digby, N.S.; Norton, F. A., Savana le Mer, Jamaica, W.I.; Oulton, M. A., M.A., Jolicoeure, N.B.; Peltier, H. G., Fort William, Ont.; Penney, L. T. W., New Germany, N.S.; Peters, H. LeB., B.A., St. John, N.B.; Quinn, F. P., Ottawa, Ont.; Rabinovitch, Max., B.A., Montreal, Que.; Robinson, R. C., Winchester, Ont.; Rublee, O. E., B.A., North Hatley, Que.; Scott, W. H., Edmonton, Alberta; Shankel, F. R., B.A., Hubbard's Cove, N.S.; Shirreffs, S. H., Clarence, Ont.; Sinclair, G. W., Provincetown, Mass.; U.S.A.; Stein, S. F., Kemptville, Ont.; Stephens, G. F., Winnipeg, Man.; Stevenson, A. B., New Glasgow, P.E.I.; Sutherland, R. H., B.A., River John, N.S.; Taylor, G. O., Hillsboro, N.B.; Thomson, J. W., Mattawa, Ont.; Trufant, L. H., A.B., Auburn, Me.; Vesey, E. M., Little York, P.E.I.; Waddell, J. R., Chatham, Ont.; Whitelaw, W. A., Meaford, Ont.; Wilson, A. A., Perth, Ont.; Woodrow, J. B., Beaconsfield, Que.

ROYAL VICTORIA HOSPITAL.

Monthly report for May 1907. Patients admitted during month, 288; discharged, 269; died, 22. Medical, 87; surgical, 114; ophthalmological, 22; gynæcological, 28; laryngological, 37. Outdoor Department: Medical, 882; surgical, 818; eye, 314; diseases of women, 136; nose, throat and ear, 407. Total 2557. No. of ambulance calls, 101.

MONTREAL MEDICO-CHIRURIGAL SOCIETY.

At the eighteenth regular meeting of the Society, on Friday, June 21st, Dr. F. G. Finley, President, in the chair, the officers for the ensuing year were elected as follows:—President, Dr. Wesley Mills; vice-president, Dr. J. Alex. Hutchison; secretary, Dr. A. D. Gordon; treasurer, A. T. Bazin, M.D.; trustee, Dr. J. A. MacDonald.

The Ontario Medical Association will meet in Hamilton next year. The officers elected for the ensuing year are:—President, Dr. Ingersoll Olmsted, Hamilton; vice-presidents, Dr. H. J. Hamilton, Toronto; Dr. D. E. Mundell, Kingston; Dr. C. E. Casgrain, Windsor; Dr. T. S. T. Smellie, Fort William; general secretary, Dr. C. P. Lusk, Toronto; assistant secretary, Dr. S. Johnston, Toronto; treasurer, Dr. J. Fenton, Toronto; credentials, Drs. W. J. Hackney, Ottawa; Malcolm Stalker, Walkerton; public health, Drs. Emerson Bull, Lambton Mills; J. W. S. McCullough, Alliston; Ira Freel, Stouffville; A. E. McCall, Belleville; publication, Drs. Geo. Elliott, Toronto; H. L. Hutchison, Toronto; by-laws, Drs. James Lindsay, Guelph; C. J. O. C. Hastings, Toronto; A. A. Macdonald, Toronto; H. S. Bingham, Cannington.

The Toronto Pathological Society, the Toronto Clinical Society, the Toronto Medical Society and the Toronto Library Association have disbanded, and formed an Academy of Medicine. The newly elected officers are:—President, Dr. J. F. W. Ross; vice-president, Dr. McPhedran; hon. secretary, Dr. H. J. Hamilton; hon. treasurer, Dr. D. J. G. Wishart; council, the above mentioned officers and Drs. Irving H. Cameron, H. A. Reeve, H. A. Bruce, J. T. Fotheringham, A. A. MacDonald, H. P. Anderson, W. P. Caven, E. E. King, John Amyot, F. N. G. Starr, R. D. Rudolf and R. J. Dwyer. Chairman of three sections of surgery, medicine and pathology have yet to be elected. These will be added to the council.

Dr. James Ross, of Dundas, Ont., brother of Dr. J. J. Ross, of Montreal, died of pneumonia at his home during the last week in May. He was much beloved by a large circle of friends, and was widely known. Dr. Ross, who was surgeon-lieutenant-colonel of the 77th Regt., was buried with military honors. We extend to our colleague our sincerest sympathy, recognizing, too, that the profession of medicine has sustained a heavy loss.

It is stated that Dr. William Bayard of St. John, N.B., still visits patients although he has reached his 93rd year, and that the local medical society is about to congratulate him suitably on the completion of his 70th year of practice. Dr. Bayard is a native of Kentville, N.S., and graduated at Edinburgh in 1837.

The officers of the St. John Medical Society, for the coming year are: President, Dr. T. H. Lunney; vice-president, Dr. C. M. Pratt; secretary, Dr. J. S. Bentley; treasurer, Dr. James Christie; financial secretary, Dr. G. G. Corbett; pathologist, Dr. Wm. Warwick; librarian, Dr. W. E. Rowley.

A severe epidemic of small-pox has lately been existent and still exists in the Counties of Leeds and Grenville. Dr. Bell, inspector of the Provincial Board of Health, speaks severely of the apathy of physicians and citizens in authority, and states that quarantine regulations have been much neglected.

Dr. Alexander Primrose has resigned the chair of Anatomy in the University of Toronto, with a view to devoting himself entirely to surgery. The chair is to be filled by Professor J. Playfair McMurrich, of Ann Arbor, who is himself a graduate of Toronto, and an eminent authority upon biology and comparative anatomy.

Dr. Allan Kinghorn, a Toronto graduate of 1904, has gone to Africa as one of the members of another Liverpool expedition for the study of Sleeping Sickness.

Dr. D. G. Revell, of the University of Chicago, has been appointed Provincial Pathologist for Alberta, and will begin work shortly in that capacity. He is a graduate of Toronto in Arts and Medicine (1899).

Dr. W. H. Moorehouse, Dean of the Faculty of the Western Medical College, has resigned, owing to ill-health, and is succeeded by Dr. F. R. Eccles.

Dr. John T. Carroll, of Vancouver, B.C., died on May 13th. He went to Welland in 1884 and practised in partnership with Dr. Schooley whose death is announced in this column. Dr. Carroll was in his 53rd year.

Dr. P. W. McLay died on June 15th, at Aylmer, Ont., in his 62nd year; he was born in Glasgow and graduated in medicine in 1870, at Victoria College, afterwards taking qualifications in Great Britain.

Dr. J. M. Schooley, of Welland, Ont., died suddenly on June 4th. He had practised in Welland over 40 years, and his wife had died but ten days before him.

Dr. George T. Young, of Vancouver, died on May 26th, while on his holidays. He was about forty years of age, and graduated at Winnipeg, where he formerly practised.

Dr. James Gray who had practiced at London, Ont., was found dead in his bed at Rochester, N.Y. on May 28th. He was forty-five years of age.

Dr. A. A. Franklin, of Brockville, died on May 16th in his 36th year. He was a graduate of Western University, London, Ont. in 1894, and practised in Chicago.

Dr. John T. Carroll died in Vancouver on May 13th. He was a graduate of Toronto University, and was in his 49th year.

Dr. John Hutchison died at Grenville, Sask., on May 5, from pneumonia, in his 54th year.

Dr. Frederick William Lewis, M.P.P., of Orangeville, died at Toronto, on May 24th. He was 52 years of age and graduated at Kingston.

Dr. Young of Vancouver, B.C., was drowned in Stave Lake on May 24th.

Dr. Malcolm, of Fogo, Nfld., died on June 5th of heart disease. He had practised at Fogo for 20 years.

Dr. A. D. McGillvary of Sydney, N.S., died on May 30th in his sixty-sixth year. He graduated from Bellevue in 1863.

Dr. C. M. Fairchild, late of Brantford and Burford, Ont., died at Boise, Idaho, early in the month.

Dr. Thomas W. Walsh, of Halifax, died on May 10th.

Dr. William Claxton, of Verona, Frontenac Co., Ont., died on May 29th. He was a graduate of Queen's Medical College in 1874.

Dr. Nichol, of Crystal City, Man., died on May 15th.

Dr. W. M. English, of London, has been appointed Medical Superintendent of the Hamilton Asylum.

The General Medical Council of Great Britain has announced its recognition of Nova Scotian degrees.

A class of twenty-four graduated this year from the Western Medical College at London, Ont.

Dr. C. H. Thomas, of Toronto, has become a Fellow of the Royal College, of Surgeons of Edinburgh.

Dr. A. A. Small, a Toronto graduate of 1895, has been appointed one of four medico-legal experts for the city of Chicago.

Dr. J. J. Morris, of Hamilton, was married to Miss Sadie Hyland, of Kingston, on May 15th.

We extend our congratulations to Dr. H. S. Birkett, on his appointment as President of the American Laryngological Association.

Of the seventy-four graduates this year at McGill, twenty-one are from the Maritime Provinces, twenty from Ontario, and sixteen from Quebec.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

CLARENCE A. MCWILLIAMS, M.D. "A Method of Reducing Old Colles' Fractures, Stiffness Following Apparent Contusions of the Elbow. *Med. Record, May 25, 1907.*

A simple and effective method of dealing with fractures of the above variety, in which no treatment has been given, or when faulty position

and limitation of movement render the hand practically useless is suggested by the writer. A large monkey wrench, with its blades well padded, is applied in such a manner as to have the blades entirely proximally situated to the fracture line, the edge of the dorsal blade resting against the posterior projecting edge of the lower fragment. With little force, a refracture is readily produced by twisting the wrench so as to flex the lower fragment upon the upper. There is no traumatism to the wrist structures, and that to the tendons is slight and passes off in a couple of days. In almost all cases this method does away with any cutting operation. The refracture is treated in the usual way with anterior and posterior splints. Injuries to joints are sometimes very puzzling from a diagnostic point of view and a so-called sprain not infrequently causes marked limitation of movement. Even the X-Ray, taken immediately after the injury may reveal nothing abnormal, and yet the same untoward result may occur. Two skiograms are shown of a typical case, an injury to the elbow joint, the first showing nothing abnormal, the second, taken during the third or fourth week shows a fragment of bone in or around the joint. The writer explains this production of new bone and consequent interference with the movements of the joint, as being caused by a tearing or stripping away of a portion of the periosteum which goes on to bone formation. He advises all such cases to be kept under observation, and passive motion instituted at the first sign of any limitation of motion.

P. Lockhart Mummery, B.C., F.R.C.S. "Operation for Removal of the entire Rectum and neighbouring Lymphatic Glands for Carcinoma." *Brit. Med. Jour. June 1, 1907.*

The operation advocated is practically that of the usual excision of the rectum by the perineal route. Here, however, the entire rectum is removed, and the sigmoid colon is brought down and sutured to the skin around the anus.Preliminary colotomy is not performed unless the growth has caused constriction with dilatation above, rendering it impossible to secure proper asepsis of the field. If the sphincters are involved, the growth is removed and a permanent colostomy established. When making a preliminary colotomy, the highest possible part of the colon should be brought down, so as not to interfere with the subsequent bringing down of the sigmoid. The previous unsatisfactory results obtained have been due to lack of securing proper asepsis in the first place, and to the fact that the rectum, the upper portion of which is the part usually brought down, being a fairly fixed organ, does not lend itself to plastic operation, while the moveable sigmoid does. The

advantages claimed for this operation are that the entire rectum and growth, cellular tissue and lymphatics, are removed en masse; that it renders it possible for the operation to be performed aseptically and the wound to be kept clean after operation, that it enables the normal opening of the bowel to be restored in almost all cases that do not necessitate removal of the sphincters, that it permits of the removal of more extensive growths than either the perineal or Kraske methods, and that there is none of the mutilation of the pelvis as in the latter operation, the removal of the coccyx does not seem to cause any subsequent inconvenience. The sphincters soon regain their function, sensation at the anus is established, and the patient is able to tell when the bowel is full and to control the action of the bowels in the ordinary way. The propulsive power of the rectum is, of course, lost, and this function is not readily acquired by the sigmoid, thus necessitating a daily enema. The writer believes this function will be acquired in time and the enema dispensed with.

B. G. A. Moynihan, M.S., F.R.C.S. "Duodenal Ulcer." *Practioner, June,* 1907.

It is probably no exaggeration to say that, among the advances in our knowledge of the diseases within the abdomen, which have resulted from the more frequent operations in recent years, there is none of greater importance than that which refers to ulcer of the duodenum. Six years ago the writer reported 7 cases operated upon, and in only one was a positive diagnosis made before operation. Up to the end of 1906 the number had been increased to 114, and it is upon the records of these cases that the clinical picture of duodenal ulcer is based. The ulcer is most commonly found immediately beyond the pylorus, in about 90 per cent of the cases. It may occur in any part of the duodenum, may be single, scattered, or exactly opposed, the so-called "kissing ulcer." It may be small, circular, slightly indurated, and cause no stenosis; or it may be large, hard, puckered and adherent, and a high degree of narrowing may result from its cicatricial contraction. It occurs at any period of life. Lister and Spiegelberg found it in infants 3 or 4 days old, and melæna neonatorum, in some cases, at least, has been shown to be due to duodenal ulcer. The oldest case in this series was a man of 73, while the average was 38. It affects men more frequently than women, the ratio being 2 to 1 in the series. Other writers vary between 2 and 6 to 1. It is frequently found to be associated with gastric ulcer, in about 40 per cent, and is probably secondary to it and caused by the digestion of the mucosa by the hyperacid gastric juice. It is a very

striking fact that the part of the bowel affected by the process of ulceration is that with which the food, as it leaves the stomach, is immediately brought into contact. It must also be remembered that the writer has shown peptic ulcer of the jejunum to be a sequela of gastro-enterestomy. A history of hasty and perhaps heavy meals at irregular intervals is not infrequent. The symptoms of duodenal ulcer are, in the great majority of cases, sufficient to enable a diagnosis to be made without any physical examination of the patient, the anamnesis being generally pathognomonic. The pain may be slight or severe, varying from a sense of uneasiness passing on to a burning, gnawing sensation, to that resembling an attack of biliary colic. It comes on usually from one and a half to four hours after eating, the hour or two following a meal being the patient's best time during the day. The pain is referred to the back, to the right of the median line in the upper portion of the abdomen, and may radiate around the right side of the chest. Coming on as it does at a time when the patient should feel hungry, the term "hunger pain," suggested by the writer, is a most appropriate one. Relief following the taking of food varies in time according to the kind of meal, heavy food giving a longer respite from pain, though, of course, with more serious damage eventually to the ulcer. With the pain there is generally a feeling of flatulent distension in the epigastrium, relieved, often considerably, by belching or pressure. In a large number of the cases the patients have been sleek and well-conditioned, not at all the kind one would imagine were subjects of ulcer. As in gastric ulcer, so in ulcer of the duodenum, an attack may be followed by a latent period, when the patient feels perfectly well, and this may be repeated quite a few times without any serious complication. Vomiting is an infrequent symptom in duodenal ulcer, and is present only when stenosis has developed, or the patient has not learnt his stomach's capacity. The most serious symptom is hæmorrhage, which may be manifest as hæmatemesis or melæna. Frequently this is the only symptom of importance, the patient giving as his complaint, "attacks of faintness." Questioning generally, however, elicits some epigastric pain and the usual history as given above, and examination of the stools shows melæna to be present Hæmorrhage from a duodenal ulcer is a more serious and dangerous affair than from gastric ulcer. In the latter, the visible evidence—hæmatemesis—is a fairly good estimate of the amount of bleeding, while in the former, a patient may die from hæmorrhage when the amount of blood discharged from the body is no great quantity. The hæmorrhage in duodenal ulcer is not necessarily more profuse, but it is certainly more apt to continue, to recur, and is less under control than gastric

ulcer. Perforation may occur at any stage in the course of duodenal ulcer, but never without previous symptoms. These symptoms may have been slight, almost negligible, or even neglected, but a reasonably close enquiry will always elicit them. Perforation may be acute, subacute, or, chronic, a classification elsewhere elaborated by the writer. The most important information gained by physical examination is the area of tenderness. Dr. James MacKenzie has shown that this area, marked out by pinching the skin away from the muscles, so as to avoid deep pressure, will indicate the situation of the ulcer. In ulcer of the lesser curvature, near the cardia, this will be in the middle line or slightly to the left near the ensiform cartilage. If at the pylorus, it will be lower down near the umbilicus, if duodenal, it will be a little above and slightly to the right of the umbilicus. Gastric ulcer is much more amenable to medical treatment than duodenal; and the writer regards the latter as a far more serious disease. He advises surgical treatment as soon as a positive diagnosis can be made. This generally consists of a posterior gastro-enterostomy with infolding of the ulcer by a double layer of sutures. He insists upon a strict diet for 3 months following operation and that an alkaline bismuth mixture be taken if there is any indication of persisting acidity. The results obtained have been very good. Eleven cases operated upon for perforation with two deaths, 101 cases for other symptoms with two deaths. The end results have also been good, only one case coming up for a second operation on account of subsequent development of a peptic ulcer of the jejunum.

W. L. B.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

Josef Sorgo and Erhard Suess. "Concerning Experiments with Tubercle bacilli of human origin on Snakes and the Alteration of character of these organisms." *Centralb f. Bakt, 1907, xliii, p. 529.*

The authors isolated strains of tubercle bacilli from infected human tissues. The characters of these organisms were compared with strains of the bovine, avian, and amphibian tubercle bacilli. Various cultural and inoculation experiments were then carried out. The authors noted that, by the transplantation of many hundred sub-cultures, spontaneous varieties of the organism would occasionally arise. The varieties became fairly permanent in their characters.

The authors found that there were specific tubercle bacilli for cold-blooded animals, which produced lesions not unlike the human variety. They noted that the human variety was more severe in its effects on cold blooded animals than the strain which was naturally peculiar to these animals. An interesting point was noted in their experiments, that when the human tubercle bacillus remained over an extended period in the cold blooded animals, it altered its characteristics, approaching the cold blooded variety. At times, however, the characteristic properties of the human variety was retained at all times.

The interesting features of their entire experiments are (1), the spontaneous production of new varieties of tubercle bacilli in culture, (2), the infection of cold blooded animals with human tubercle bacilli, (3), the change of the human tubercle bacilli when in a cold blooded host, to a variety more closely resembling that naturally present in these animals.

E. D. Zebrowski. "Concerning the Action of Tobacco Smoke on the Blood vessels of Animals." *Centralb. f. Path., 1907 xviii, p. 337.*

It has long been assumed by conditions that tobacco smoke has a deleterious effect upon heart and blood vessels. Definite experiments to prove this contention have never been made. Nevertheless, definite symptoms are known to occur on excessive smoking. Other experimentors have demonstrated that the inoculation of nicotine into the circulatory system of animals does produce certain arterial changes. Such inoculation of nicotine, however, does not represent the ordinary course by which the drug gains access into the system. And again, the dosage of the nicotine was far in excess of the amount absorbed from the respiratory system.

The author attempted to make the conditions of the experiment simulate those of ordinary smoking as nearly as possible. In other cases he inoculated the animals with a solution of smoke in water. He found that severe lesions in the arterial system were produced by the ingredients of the smoke. These arterial lesions were identical with those of adrenalin. The author is undecided whether or not another constituent of smoke besides nicotine produces deleterious effects on the circulatory system.

Ruppel. "The Relationship of Meningococci to Gonococci. *Deutsche Med. Wochen., 1906, p. 1366.*

The author points out that there is a very great variation in virulence between the various strains of meningococci. Culturally, these

strains show no difference, and all of them show difficulty of growth in fluid media. With repeated transplantation on fluid media, the growth becomes more luxuriant and the virulence likewise increases. By repeated inoculation rabbits can be immunized against virulent cultures. Animals treated with cultures of gonococci are protected from meningococci. Nevertheless, the sera produced by the various strains serve to distinguish the meningococcus from the gonococcus in the agglutination test.

KUTSCHER. "The Isolation of Meningococci from the Nose in healthy persons." *Deutsche Med. Wochen 1906, p. 1071.*

In 1905 the author examined the nasal secretions in one hundred and four healthy persons, and in two cases isolated an organism which could not be differentiated from the meningococcus. During an epidemic of cerebro-spinal meningitis in 1906, the author was able to isolate Gram-negative diplococci from the nose and throat of fifty-six persons not suffering from meningitis. The cultural differentiation of these diplococci from the organism of meningitis was difficult. He claims that four of the strains isolated were true meningococci. The animal experiments also gave results identical with the diplococcus intracellularis. It is shown, therefore, that the meningococcus may be present in a healthy nose and throat without producing disease.

OLMACHER. "The Poison of the Meningococcus." *Jour. Amer. Med. Assoc., 1906. Vol. 47. No. 3.*

The author by accident discovered the toxicity of the cultures of the organism. The inoculation of the filtered culture or one that had been rendered sterile by the use of trikesol produced fever and collapse within eighteen hours. Smaller doses of the filtered culture produced tetanic convulsions. Cultural fluids which had passed through the porcelain filters were harmless.

The presence of chalk is necessary in the culture medium to ensure a good growth of the organism.

VARIOUS AUTHORS. "The Origin of Anthracosis." *Various Journals.*

Very many papers have been contributed to this subject, and innumerable experiments have been carried out on lower animals to solve the problem. The results of these experiments are then applicable to the subject of tuberculosis, mainly as regards the point of invasion of the tubercle bacilli before reaching the lungs. It is quite probable that the route taken by foreign bodies, such as coal dust and lamp black represent, is also followed by the tubercle bacillus.

As long ago as 1862, Villaret contended that pulmonary anthracosis had its origin in the intestinal tract, and since then there have been quite a number of supporters to this idea. Arnold, in 1885, could not find the presence of lamp black in the mesenteric glands, though much was present in the intestinal tract. This was commented upon by Vansteenberghe and Grysen, who pointed out that dust particles could pass through the lymphatic glands and reach distant parts without leaving a trace of their passage through them.

The greater number of experiments, to prove the veracity of the different contentions, were made by allowing animals to inhale smoke or to injest lamp black. Calmette found that smoke particles do not reach the lung alveoli unless the experiment is carried on for over an hour. On the contrary, Kuss and Lobstein demonstrated the presence of charcoal within the bronchial glands and the lung alveoli at the end of twenty minutes inhalation. Their results are supported by those of Beitzke, who, as a further precaution in the experiments, ligated the œsophagus.

That pulmanary anthracosis may have its origin fro mgastro-intestinal tract has also been proved. These experiments have become complicated as the invasion of the dust by the respiratory system and the glandular system of the neck had to be excluded. This was done by introducing the foreign particles into the stomach by gastrostomy. In such cases, a certain amount of anthracosis was produced in the mediastinal gland, but very little reached the lung tissue. It was found that only large quantities of charcoal so introduced would give these results, and that this route was not to be considered in the human.

Lamp black, when introduced into the circulatory system, becomes lodged in the liver, spleen and kidneys with only a very slight amount in the lungs.

In general, therefore, it might be said that animal experiments point to the respiratory system as being the site of invasion of coal dust, and that the alimentary tract plays a very unimportant role.

O. K.

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IMMUNITY AND PREVENTIVE MEDICINE.

BY

S. ORTENBERG, Med. '08.

It is scarcely four-score years since a suspicion of the bacterial causation of disease dawned on medical investigators. To-day the science of Bacteriology has already made a brilliant progress, and, because of this advance of knowledge, we conclude that there is a great deal more to come which is as yet unrevealed. But with this enlightenment has also come an improvement in the methods of healing. These improved methods of healing include not only the restoring to the normal of nature that has gone astray, as it were, but—what is of equal, if not of greater importance—the anticipation, or prevention, of nature's subsequent deviation from the path of normality. Up to the time that bacterial existence was surmised medical treatment, especially in the various infections, was almost purely empirical. As the study of germs progressed the causes of the various contagious and infectious diseases were gradually unearthed.

Lord Lister was the first to discover the bacterial causation of infection through wounds. This was really the starting-point of the true study and application of prevention in the infections. And thus the discovery of the exciting, or microbic, cause of disease supplied the missing link to what is our present system of Rational Medicine.

Now, the main aim of Medicine, as a science, is the alleviation of pain, the elimination of sufferings, and the curing of diseases. But, wherever possible, it should also be the purpose of medical study to prevent the setting in of such diseases, the subsequent sufferings, and the accompanying pain. The cure of smallpox is now possible. But the prevention of the disease is also possible, and, indeed, practised. Cancer—the dreaded *opprobium medicorum*—is as much as possible, cured. It is cured empirically, and always by means of the knife. But the preventive cure is unknown. Why? Why is it that small-pox or

diphtheria or tetanus can be prevented, and that cancer cannot? To answer this question let us examine the course of any disease, such as diphtheria, before the anti-toxic treatment was discovered. The symptoms used to be noticed over and over again; the unfortunate results have been witnessed not infrequently; the predisposing causes were to a certain extent also known. But the exciting and most important cause, used to be a total mystery. But now we know that diphtheria is the result of the toxic action of certain complex chemical substances. These substances are the products of certain specific, minute, living organisms present in the diphtheritic membrane. These organisms are so minute that they require a magnifying power of about one thousand in order to distinguish them—slender, rod-shaped forms about 1-5000 inch long. And, since we have the whole chain complete, the way is clearer for the discovery of a preventive cure for diphtheria. In fact, the preventive of diphtheria is now known and made use of, so that even if the diphtheria bacilli do enter the body, the action of their toxins is counteracted, and their growth inhibited. Therefore, it can be understood, in the case of cancer, that since we are as yet ignorant of the true exciting cause, a priori it is impossible, if we are at all to argue rationally, to search for an immunising agent before finding out the cause. At present there are investigations on foot towards the discovery of the exact cause and nature of this dreaded disease.

But, in the meanwhile, why not observe the practical side of the motto, "What we have we'll hold?" There are a large number of infections the spread of which we have it in our power to anticipate, if only the right steps in the matter were taken. Of course, the power of the physician individually towards the prevention of infection of a whole community or of a town is quite limited. The only instruments practically that could, *with the guidance* of the physician, prevent the spread of disease, are three in number.

There is, first, the *individual* himself. The Hebrew Talmud says, Very often the sick person is the better physician than the doctor. The application is quite appropriate in this case. Each and every person should have a clear understanding of the means by which he may keep himself and his neighbours from contracting disease; and, if he is only willing to adhere to such principles, more good will be accomplished than if he follows blindly and imperfectly whatever the physician tells him to do, and of which he will, of couse, have no comprehensive idea. The latter part of the paper—dealing with a special system of Preventive Medicine—will more clearly define the power of the individual in this respect.

There is, second, the *Municipal* agency. Every town should pass certain laws that shall pertain towards the protection of its inhabitants against infections. In this respect, such towns as Hamilton, in Ontario, deserve the eulogy of the Medical Science. By legally prohibiting anybody, under pain of prosecution, from expectorating on the ground within the city limits, the authorities have done a great deal to prevent the spread of tuberculosis of the lungs in their city. (Just lately a similar law has been passed in Montreal.) Similarly, a certain town in Germany has recently passed a law forbidding any women to wear long dresses when walking in the streets. For, as is well-known, one of the ways in which the tubercle bacilli are introduced into the dwelling, and thus attack the occupants, is by the trailing of long dresses in the dirt of the streets. Here, again, I cannot help mentioning the usefulness to a municipal government of enforcing such regulations as will be detailed in the part which deals with Preventive Medicine, pure and simple.

And, lastly, there is the *Central* Agency. I allude to the Public Health Department. The latter is, in fact, *the* powerful agency for the prevention of disease. The stringent system maintained in Germany has benefitted that country materially. In that land of learning all the schools both in city and country, are thoroughly inspected, and the children safeguarded as much as possible against disease. Now, it should be the duty of the Public Health Department to enforce a law which makes it compulsory that hygiene—in as elementary a form as possible, of course—be taught in all the public schools. Such a system is in force in Germany and in Austria. In those countries it is also compulsory for every child to attend school.

The printing of anti-tuberculosis circulars, and their distribution, has not accomplished half the purpose that they were intended for. Indeed, it is well known that, through carelessness and untidyness, youth is the innocent propagator of germs. And who would expect that the small boy or girl would abandon the storybook for the anti-tuberculous circular, unless it were one of the regular lessons at school? And, again, if the ordinary elementary principles of respiration, the circulation, etc., were made known to all the school-children, the number of adults, in future suffering from cardiac lesions, respiratory troubles, and circulatory disorders, would be greatly diminished. It is only too true that a certain proportion of these maladies are due to the inattention of the individuals, during their youth, to such matters as overtaxing their circulatory, respiratory, and muscular systems. Nor must it be forgotten that this inattention was primarily due to lack of informa-

tion as to whether their respective systems were competent to stand the running of a race, or as to whether the heart had the power to meet all the taxings of hard athletics, or not; and so on. It is true that exercise is beneficial; but everybody knows that there is a limit. The child, however, is unaware of this fact. Still more, certain individuals, in whom the heart or any other part of the circulatory system is incapable of maintaining equilibrium during exercise, are far from being benefitted by the same; on the contrary, they lose by it. These facts are quite undisputed, and they emphatically demonstrate the value of possessing a knowledge of certain facts; these facts including the means by which one can protect himself—if he is not already safe—or, on the other hand, the means by which one can ascertain as to whether he is secure or not.

Now, as Dr. Mills, in his book, on the voice, has said, practice and principle have been too widely separated. And, therefore, in this treatise, the object aimed at may be summarised as follows:

To impress the importance of—if not to recreate—the principle and practice combined of a number of nature's mechanical factors (reviewed in the study of Physiology) that shield the organism against non-microbic disorders, and, to a certain extent, against afflictions caused by germs.

To bring to the fore the Nucleinic Method of Immunisation against infections.

And last, but not least, to bring before the medical man's notice an actually existing system of *practical* hygiene; a system which has as yet not been universally recognised, but which after due and careful consideration would, I am sure, be acknowledged as good. It is a system that has been practised for the past thre or four thousand years by a certain race. It is a system which has the advantage over *all* other systems that it can be followed by the most unintelligent laity. So simple, yet useful, is this system.

Before plunging into the essence of this dissertation, I may forewarn the reader that I have omitted most of the technical details concerning Immunity (against infections) proper. For, not only is there little room to give any satisfactory account of such an immense subject, which, in the words of Tennyson, is like—

> "an arch wherethro'
> Gleams that untravel'd world, whose margin fades
> Forever and forever when I move,"

—but I would be committing the crime of reiteration. Indeed, these technical facts concerning Immunity are far better described in any

modern book on Bacteriology or on Pathology, than in any attempt of mine. And my purpose is to indicate not to teach. It will also be apparent that I am mainly confining myself to the historical side of this question. However, of modern teachings of Immunity, those that are of greatest importance will be considered also, but as briefly as possible.

Immunity may be defined, as that series of properties possessed by an organism, by virtue of which it is capable of withstanding deleterious actions and harmful influences. Immunity against the infective diseases has been defined by Metschnikoff, as the group of phenomena, by virtue of which an organism is able to resist the attack of the micro-organisms that produce these diseases. But, besides infective disorders, there are other complaints—minor and major—in which the disorder set up is caused by some mechanical or some chemical agencies, respectively. To counteract these various kinds of injurious actions, the body is endowed with certain properties, each of which meets the respective noxious influences in analogous ways.

The following is a summary in tabular form, of the construction of this paper:

- Immunity
  - I.—Congenital:
    - Physical.
    - Chemical.
    - Vital.
      - General.
      - Local.
      - Racial.
        - Absolute.
        - Relative.
  - II.—Artificial:——(Technical Methods.)
    - Active.
    - Passive.
  - III.—.....(Non-technical Methods.)

(II. and III. = Preventive Medicine)

By physical immunity is understood a knowledge, primarily, of the functions of the various systems—nervous, circulatory, etc. The simplest illustration is the fact that there are valves in the veins. Perhaps the value of this fact is not half realised until we meet with the uncomfortable affliction of varicose veins—when the valves, having been put out of order, do not inhibit the blood from stagnating back in the veins. Similarly, the existence of elastic fibres in the arteries acts as a natural immunity against over-distension and final rupture of these

vessels at each vigorous output of blood from the heart; such an immunity is sometimes beaten down, and we have the disease arteriosclerosis and also aneurysms—the latter of which very often lead to sudden death on the slightest exertion. Also, the compensatory functions of the heart to various conditions of the circulation is due to the nervous mechanism—both vagal and sympathetic—and is included in the list of protective means.

Another great defensive factor in the mechanism of the circulatory system exists in the arterioles, which are controlled by the vaso-motor centre in the bulb. And were it not for this caloric regulator, present in all homoiothermal animals, one would freeze to death when the atmospheric temperature happened to be a little below normal, or one would die as the result of excessive heat when the atmospheric temperature is a few degrees above the normal body-temperature.

Nor can one over-rate the advantageousness of the existence of auriculo-ventricular valves and of valves between the auricles and the large arteries; at the same time, the usefulness of the chordæ tendineæ, and the contractile powers of the musculi papillares to which the latter are attached, must also be remembered.

The *involuntary* reflex closure of the glottis is of extraordinary importance in the prevention of the entrance of foreign bodies into the larynx—which would lead to choking and death. The elasticity of the skin serves as a great protection to the body. The value of this property is often taken advantage of by surgeons. For example, by the removal of a tumour of the breast or by excision of epithelioma of the lip or by excision of a large piece of scrotum in varicocele, a large piece of skin is necessarily removed. To make up for this deficiency, the surgeon pulls together the opposite sides of this exposed wound surface and sutures them, thus covering up the space left by the removal of the skin.

We now come to consider the question of Chemical Immunity. It must be remembered that the natural defences of the body are also partially composed of substances whose mode of action is chemical, as opposed to such whose mode of action is of a physical or of a vital nature. A very good illustration of what is meant by this form of immunity, is a factor which plays an important part in the protection of the individual. I allude to the clotting of blood. This is almost a purely chemical action. And, were it not for the clotting of blood, surgery, even of the slightest kind, would be dangerous. Unfortunately, the lack of this coagulating property of the blood exists in hæmophilics But, very fortunately, hæmophilia is rare.

The system is guarded against bacterial invasion through the alimentary tract by the presence of hydrochloric acid in the gastric juice, and, it is said, that also the bile is antiseptic. The acidity of the urine prevents putrefactive processes in the bladder. The alkalinity of blood of the body to perform their oxidative processes. And, venous blood, on account of its greater alkalinity, is more germicidal than arterial blood.

Nor must we disregard the natural compensatory activities of the body as manifested in Diabetes. In the later stages of this systemic disorder —when acetonemia sets in—the blood becomes impregnated with poisonous acids. Now, the body compensates by producing less urea (proportional to the amount of urine) and more ammonia, instead. So that, as a result, we find the ammonia in the urine quite excessive. The natural self-preservative properties are also exemplified by the mucous membrane lining the alimentary tract and the various ducts that convey the digestive juices into the intestine. For the cells have been stimulated so as to naturally produce some chemical substance which indurates or immunises it against the digestive activity of the various juices with which it is in contact unintermittently.

The next subdivision, according to the classification presented above, is vital Immunity. By the word "vital," in Physiology, is meant a certain series of phenomena which take place in the living animal body. These phenomena we are able to observe, yet unable to specify their primary causation; they are spontaneous, yet we cannot artificially reproduce them, even with the most ingenious uses of chemicals and electricity at our disposal. Such a series of activities is constantly taking place, normally, for the purpose of protecting the body against disease. In the investigations that are made towards the solution of this mystic problem of "vital" activity, it has been found invariably that the nervous system—peripheral, intermediate ,and central, but mainly the latter —plays the most conspicuous part in these activities. Pathology teaches us that the nerves supplying the various tissues, organs, and joints, contain (besides sensory, motor, and secretory fibres, respectively, also) so-called "trophic" filaments. In fact, the belief is held by some that even those filaments not designated as such, are to a certain extent "trophic" also. The word "trophic" as applied here, must not be understood as meaning nutritious only. The trophic influences have also a protective influence on the part supplied by the nerve. And, if anywhere along the line of this trophic nerve-system there be a lesion (due either to traumatism or to disease), then the trophic influences to the part are intercepted, sometimes wholly, sometimes partially, according to the degree of injury. This fact is

very important to remember. For, if the trophic influences to any part be deranged, the reduced defensive power of that part would render it susceptible to the attack of living or dead destructive agents. Thus, as already mentioned, above, the lining mucous membrane of stomach and intestines resists "auto-digestion," as it were, when its nerve-supply is unbroken. But, in Neurosis the trophic influences to this region are so interfered with that the hydrochloric acid and pepsin are able to exert their digestive activities and so produce, what is called gastric ulcer.

Another important fact well worth the reader's attention is the following:—In the lower animals, such as the dog, the rabbit, etc., it has been found that recovery from an operation on any part of the abdomen takes place within three or four days—five days at the outset. In man it takes at least three or four weeks—sometimes as long as six weeks—until health returns. Again, it has been shown that even when very little attention has been paid to the disinfection of a wound in the lower animals, no appreciable ill-effects result: in man, ninety-nine cases out of a hundred, septicemia (and often death) is the consequence. This is, in fact, a concrete case of the laws regarding Conservation of Energy. For, in man the mental power and the dexterity of actions are the most developed and pre-eminent; in the lower animals, however, this is almost altogether absent. Consequently, the difference is requited by a more highly-developed *protective* nervous system which serves for the purpose of eliminating all noxious materials.

Next shall be considered (as briefly as possible) what is included under the heading of racial immunity. The latter refers to that specific congenital immunity (against the various infections) possessed by different species of animls. Thus, according to Lazarus Weyl, the chick is immune (even at birth) to the most virulent culture of the anthrax bacillus. Insusceptibility to the same infection is possessed also by frogs, rats and pigeons. Dogs are not attacked by the tubercle baccillus, nor rabbits by that of glanders. And all kinds of animals (excepting man) are congenitally insusceptible to measles, scarlet and typhoid fevers. And, since these immunities are congenital (as seen in the insusceptibility of the new-born chick to anthrax), therefore this racial form of immunity must be a property of the parent-cell.

Also the human species possesses natural resistance to certain disorders to which some of the lower animals are subject. But we can yet subdivide the human species into many races which possess varying immunities, yet they cannot be accounted for. But, just as habits, environment, and modes of living, bear an influence on any kind of heredity, so they may be said to bear an influence on the heredity of immunity

to infections. Thus, the Chinaman is immune to typhoid fever—not that typhoid is unknown in China. However, on inquiring into the habits of these people and their modes of living, the fact is laid open as to the most potent factor which tends to guard them against the disease. It is that for hundreds of generations back they have rarely used milk; and, similarly, have they abstained from eating vegetables, or if they did help themselves to the later they were always cooked beforehand. And it is now well-known that the typhoid bacillus can subsist for a very long time in vegetables; and milk is a good medium for its growth and multiplication. It may also be well to mention here that during the late South African war statistics complied with regard to typhoid fever showed the following:—Of the British soldiers who contracted the disease the large majority were immigrants to South Africa, whereas the minority were natives (or, at least, those who had lived there for a very long time). Similarly, the statistics of the Royal Victoria Hospital and the Montreal General Hospital show that the majority of typhoid cases are Englishmen and people who came only lately to Montreal. That is, those who have lived in the presence of the disease all their lives have gradually become inured to these bacilli, and thus they have been able to resist the attacks better than strangers.

Acording to the teachings of Waismann and his school, acquired properties are non-hereditary. The above expositions, however, tend to gainsay this statement. Another distinguished investigator, who also upholds this theory, gives the following statement to prove the point in question. He says that if a mouse's tail were cut off, it would be necessary to keep cutting off the stump, just as fast as it grows, in thousands of generations, in order that a hereditary tailless mouse be born. This illustration is quite valid. Indeed, we have it exemplified in a practical manner among the Jews and Turks. For, although their male children have invariably been circumcised for the past three or four thousand years, yet each male at birth still possesses the prepuce, just the same as the uncircumcised gentile's offspring. But this simply proves the non-heredity of acquired properties that are of an *anatomical* character only; and it does *not* eliminate the possibility—nay, the probability—of the heredity of acquired *physiological* properties. The third division of this essay attempts to prove the latter. As to whether it has succeeded will be left to the reader's own judgment.

The preceding congenital immunities (that have been detailed in brief) may be termed absolute immunities. In other words, the individual members of certain respective species possess the same, unchangeable, respective immunities. But, there is a further sub-division of

racial immunity—that of relative immunity—in which some of the individuals of the same species are endowed with greater degrees of immunity (to the same disease) than others. Thus, field mice are quite insusceptible to tuberculosis and glanders, whereas the white and house mice are very little immune to these diseases. Similarly, in man, the adult is partially immune to scarlet fever and is comparatively immune to diphtheria and measles, whereas the child is quite susceptible. But, even when so-called absolute immunity *is* present it must not be taken for granted—

> "As if this flesh which walls about our life
> Were brass impregnable."

Even the adult can be made susceptible to diphtheria, the Chinaman to typhoid and cholera, the negro to malaria, or the chicken to anthrax, provided that certain conditions are present. (Indeed, when we say absolute immunity we really mean comparatively absolute, if such an expression be permissible). These conditions are, that the general constitution be run down, that the exposure to the disease be long enough, and, lastly, that the virulency of the culture or of the infection be strong enough. Thus (to give at least one example), in man malnutrition—either through lack of food or through mental anxieties or some disturbance of the central nervous system—predisposes the individual to any disease to which he is otherwise immune.

Let us now take an insight into the virtual focus of immunity (against infections) as it is understood to-day. I mean so-called general immunity. General immunity is the term applied to that property (or series of properties), in virtue of which the system as a whole is able to cope with and destroy any intruding deleterious material. This injurious material may be of the nature either of living or dead bacteria, or of the toxins of these bacteria, or of the venoms (or deadly enzymes) of poisonous snakes. One of the most important influences controlling general immunity is, again, nervous. Next to the nervous influence, the blood is of prime importance in the maintenance not only of life but of health also. Even the Bible has said—a couple of thousand years ago—that "blood is life," and we are, indeed, gradually coming to prove this fact in all its vital details.

As to the hypotheses that have been advanced to explain the causation of General Immunity against infections, the following deserve consideration.

The earliest—the Exhaustive Theory—was brought forward by Pasteur and Klebs. They believed that in the body there are certain substances of nutritive value to bacteria, which substances are used up after

some time by the germs, and that the resultant immunity is due to the absence of food for these micro-organisms. In other words, one possesses natural immunity, when his body does not harbor such substances as are of nutritive value to that specific bacillus. In contradiction to this theory is the fact that we use blood-serum, as being the best medium, for the development of cultures of most pathogenic organisms. Still more, for the purpose of producing *artificial* immunity (which, as will later on be explained, is similar in character to natural immunity) we inoculate into a susceptible, the serum of an immune animal. This means that simply the absence of food-material (for the bacteria) in the serum employed is not sufficient to cause immunity.

The Retention Theory—promulgated by Chauveau and Wernich—claims that, during their growth, bacteria produce certain substances which are inimical to their own development. Of some bacteria this is certainly true, when the culture is in an artificial medium, and in a test-tube; or, it occurs in the body, sometimes, when that part in which the bacteria have ensconced themselves, is cut off from communication with the rest of the body, that is, when the "auto-toxic" (to coin a word) products of the organisms remain centred around the latter. But, these men claim that, *a priori* the animal is rendered immune, even after the disease has disappeared. However, the fact that immunity to a certain disorder may exist for a very long time, and, in fact, be transmitted to off-spring disproves such an extreme view as is supported by this theory.

Still another theory—that held by Buchner and Wolffberg—regards an immune animal as possessing only those cell-elements which are strong enough to eliminate the germs and poisons of the infection. For example, in an individual attacked by small-pox, the weaker cell-elements would be gradually destroyed, and only the stronger ones (i.e., those able to cope with the germs) remain. However, even this theory fails to conform absolutely with the results of numerous investigations.

Modern teaching, however, upholds the Phagocytosis Theory of Metschnikoff as explaining the signification of natural immunity (with which Behring's name is connected). As stated earlier in this paper, dearth of space hinders a complete exposition of these two theories against infections. Another school supports the humoral theory (which, however, are efficiently taken up in most of the modern text-books on Pathology). Suffice it to state that the Phagocytosis Theory has for its basis the fact that leucocytes ingest (and thus destroy) bacteria. On the other hand, the Humoral Theory holds that bacteria are killed by certain bactericidal substances present in the fluids of the body (and not in the leucocytes).

The last subdivision—according to the tabular summary given above—treats of local immunity. In the various diseases it is often noticed that some parts or organs become invaded with the infection, whilst others are quite undisturbed. Thus, to give one illustration, at least, the mucous membrane lining the mouth and pharynx is quite competent to destroy any bacteria that find their way there. On the other hand, the endothelial lining of the alveolar air-sacs of the lungs is often quite susceptible to the attacks of invading bacteria. And, again, if the pharyngeal mucous membrane have its continuity dissolved—either through excessive bacterial activity or through traumatism—the bacteria are thus given free ingress into the deeper tissues where they can grow and produce their toxins; the latter enter the circulation and bring about the specific toxaemia, as in diphtheria. If the bacteria themselves enter the blood, as in pneumonia, it is termed a *bacteriemia,* or a *septicemia.*

Having presented (very concisely) the various facts and explanations connected with immunity as it is found existing naturally—i.e., congenitally—we will now explore, just as briefly, the second part of this essay. The question now presents itself, How can a disease—whether it be of microbic or of non-microbic origin—be prevented? This question will be answered in a practical manner in this (the second) and in the next (the third) parts of this paper. In this part, there will be explained summarily the more important methods of inducing an artificial immunity by *technical* means (requiring the skill of a physician only.) This system shall *not* necessitate the physician's skill directly; the means are non-technical, i.e., so far as the medical man's services are required.

Artificial, or Acquired Immunity is, therefore an immunity induced into a susceptible individual. And in inducing such an immunity it is always borne in mind that the susceptible individual himself, already possesses the potential but not the kinetic properties of being immunised. All the doctor has to do is to supply the agents by means of which the body-cells are stimulated to act more forcibly in the direction of immunity than they have done until now. Artificial Immunity is subdivided into two classes, active and passive.

Active Immunity is induced by the inoculation of bacteria or of their toxins. This incites the cells of the animal to reaction and counteraction. This reaction means the production of anti-bacterial or of antitoxic substances, respectively. In such a form of immunity it is the cells of the individual, himself, that manufacture the defensive products; and, once the immunising power of the cells has been stimulated, their activity is often quite vigorous. The methods of "active" immunisation are—

First, Nature's own method. That is, after recovery from one attack of a certain infectious disease, such as small-pox, the individual is immune to a second attack for the rest of his life, or (in some other diseases) for a very long period only.

Vaccination, the second method, is popularly specified to mean the inoculation in the human subject of the virus of cow-pox, in order to produce immunity to small-pox. However, this term may be applied to the preventive inoculation against any disease by the introduction of the organisms causing that disease. Vaccination is accomplished in a variety of ways, viz.

By the inoculation of sublethal doses of the living bacteria in virulent form. This inoculation has to be repeated a few times with successively increasing doses.

By the inoculation of living germs attenuated in virulence. This is true of vaccination. This method is preferred to the last, for the attack produced from inoculating by this method is quite mild and scarcely noticeable, in fact, it is local—at the site of injection.

By the injection of the dead bodies of the specific bacteria.

The third and last method of producing active immunity, is by the injection of the toxins of the specific bacteria. This method is especially employed in immunising against diphtheria, tetanus, and streptococcic infections.

It must not be forgotten that immunity—whether active or passive—produced by any of the technical methods is gradually lost, also that immunity against one disease does not prevent the attack of another. Thus, immunity to tetanus does not exclude diphtheria; and so on.

Frænkel believed that artificial immunity is due to the presence of certain specific "immunising substances" which are produced by the bacteria themselves. This "immunising substance," he said, was quite different from the toxin of the bacterium. (This is, practically speaking, similar to the Retention Theory). He proved this by showing that, if the filtered products of the bacterium were heated, the toxin would be destroyed at a temperature of about 55°C to 60°C, and that the "immunising substance" was only destroyed when the temperature reached 70°C, or higher. He also said that by heating the toxin, the latter could be transformed into the "immunising substance." However, the true explanation of these experiments is that the virulence of the toxin was lessened by heat at 60°C. The oppositions to the Retention Theory have been discussed under general immunity.

And now the question presents itself, What is the explanation of the manner in which antitoxins, bacteriolysins, hæmolysins, etc., are formed

in the body, and what is the respective modes of action of these? To explain the terms just alluded to: When the blood of one animal, say a rat, is injected into the blood of another animal, say a sheep, it not infrequently happens that the red blood-corpuscles of the rat become disintegrated, and their hæmoglobin is liberated—a process termed "laking of blood." This is said to be due to the presence in the blood of the inoculated animal—the sheep in this case—of a certain specific substance. This substance is named hæmolysin. The term bacteriolysin is applied to that substance which has a similar, deleterious action on living bacteria.

Also, it has been observed that if typhoid bacilli, for example, enter the blood-stream, they stimulate the body-cells to produce Agglutinins. These agglutinins exert a negative chemiotaxis on the bacteria. As a result, the bacteria assemble in clumps, and, accordingly (as some observers affirm), their spread in the system is to a certain extent limited. Agglutinins are always specific. This feature of Agglutination forms the essence of Widal's Test for typhoid fever. I shall not discuss the nature of Precipitins, etc., as these have no direct bearing on Immunisation (in its practical application.)

Perhaps the most widely accepted theory with regard to the formation of these anti-bodies and their characteristics, is Ehrlich's Side-Chain Theory. Every text-book on Bacteriology contains a detailed delineation of this universally accepted explanation. So that it would be redundant on my part to tax the reader's patience with an unnecessary rehearsal.

The second kind of Artificial Immunity is Passive Immunity. Passive Immunity is of a more artificial character than Active Immunity. This sounds pleonastic. But, I mean that whereas in Active Immunity something is injected into the circulation and this something induces a reaction of the body-cells in *manufacturing* the anti-bodies, on the other hand, in Passive Immunity another kind of substance is introduced. This substance is *in itself* the anti-substance; and neither does it require nor does it stimulate, the body-cells to produce anti-bodies. It is for this reason that Passive Immunity is *never* permanent (indeed it often does not last long) whilst Active Immunity may last long or may be permanent.

Passive Immunity is produced—

By the injection of an Anti-toxic Serum. This is obtained from the blood of an animal that has been "actively" immunised (against that specific infection) by the inoculation of gradually increasing doses of the specific toxin.

By the injection of an Anti-bacterial Serum (prepared similarly to the anti-toxic serum).

By the injection of a solution of nuclein. Investigations in this have been made by Wassermann, Brieger, and Kitasato, in Europe. In America the chief experimenter was Vaughan, of Ann Arbor, Mich. The underlying principle of this method is that the nucleinic material of almost any kind of cells is germicidal. Thus, in the blood there are floating two kinds of cells, red corpuscles and white corpuscles. Of these the red corpuscles have been shown to be non-germicidal, whereas the white corpuscles are found to be extremely destructive to bacteria. Now, the red corpuscles are deficient of nuclei, whilst the white corpuscles contain a larger amount of nucleinic material, proportionately, than any other type of cells in the body. On still further experimentation it was demonstrated that if extracts are made of nuclein from those glands which are rich in nuclei, such as thyroid, testicle, etc., and if bacteria are innoculated in this extract, they die off very soon. The researches of Vaughan have amply proved this. This method has as yet not been adopted. For, since we are as yet not sufficiently acquainted with this branch, it would at present be unwise to employ the method.

The third (and last) part of this paper deals with a system of Preventive Medicine that, in my opinion, at least, would for all practical purposes suffice not only to keep the individual safe against disorders—infections and non-infections—but will even protect a whole community, provided that the regulations as laid out below were obeyed to the letter. And, letting alone the sufferings, time lost, or even deaths incurred, I say that if this system were carried out and practised universally, it would save the doctor's bill again and again for hundreds of thousands. I allude to a sanitary (although not known as such) system that has been maintained for over a hundred generations by the Hebrew race. One prominent writer on medical subjects has said, "From epidemics the Jews have often escaped as if they possessed a charmed life." Indeed, on inquiring into their customs—traditional, religious, etc.—one finds that their caste does not merely serve for the purpose of keeping them distinct and separates from other nations—although 'tis true, according to the Bible, that this was the purpose of the Almighty, primarily—but it also tends to protect them against disease, notwithstanding the fact that, to a great extent, they are unconscious of the fact.

Now, in relating the various Hebrew laws that have a bearing on Medicine, let it be understood that it is not for the purpose of making

proselytes. Far from this! The intent is to let the reader have the benefit (hygienic) of the facts *per se*, and, if possible, to let him profit by them from a medical point of view. And, in order to have a systematic and practical knowledge of the Mosaic Sanitary Laws, and to obviate, at the same time, the risk of encroaching one part upon the other, I shall first relate some of the various minor and sundry observances and customs, and then the regulations regarding Diet will be considered.

One of the most striking features of the Mosaic Laws, that are brought to the notice of the reader, is the number of times that the words, "to wash the hands," are repeated. Thus, among orthodox Hebrews the hands are always washed after micturating or after defæcating. When one has been in the presence of a dead body or has touched the corpse, he or she is prohibited from entering another house till they have washed. An orthodox Hebrew is required to wash his hands immediately before taking of food. On rising from bed, after sleep, he is commanded not to touch any part of his face, such as, in rubbing the eyes, the nose, etc., until he has washed his hands, at least. After cleaning or paring the finger-nails, it is also enjoined that the hands be washed. And an orthodox Jew is expected invariably to have his head covered, when eating. There is also a custom that, after eating fish, one must wash the hands, and rinse the mouth, before eating meat.

All these regulations, as is now apparent, are incorporated in the religion of this race, i.e., they are, therefore, more obeyed than if left to the option of the individual. And they have an important bearing on hygiene. Even that medical student who has but the rudiments of bacteriological knowledge can immediately grasp the sanitary significance of these few sundry laws which I have selected from a multitude. What person is there, medical or lay, who is not aware of the fact that, in the act of micturition or of defaecation, the hands, while coming in contact with the external genitals, invariably become infected? And who cannot understand that, unless the hands be washed, he will thus contaminate his food or he will bring contagion to any other part of his own body, if not of another individual? The same explanation also suffices for washing the hands on awakening from sleep. As for cleansing after being in proximity to or in contact with a corpse, it is quite well known that it takes only twenty-four hours, at most, before the body (after death) becomes wholly invaded with all kinds of bacteria, chiefly putrefying; and the animal body is by no means a bad medium for the growth of the majority of pathogenic bacteria. So that these rules so far as the average, uninitiated laity are capable of carrying out,

without the physician's aid, suffice adequately, it must be admitted, in preventing contagions both to the individual himself and to his fellow-creatures. The average layman would find it both troublesome and expensive to cleanse his hands with alcohol, oxalic acid, and other such disinfectants and antiseptics, although it is certainly in the line of the medical man. But, what will even the medical man say against pure, clean water and a towel?

Lastly, but not least, is acknowledged the fact that the preventive medicine of that dreaded scourge, leprosy, is wholly contained in the Bible. And the injunctions, that have been meted out by Moses, are admitted by all modern physicians to be the best that have so far been devised. The preventive medicine of leprosy was in full force during the Israelitish *regime,* but nowadays it has been abandoned by the Jews. And, again, the rite of circumcision, far from being barbarous, is being practised by modern surgeons for the cure of phimosis and paraphimosis. And, without plunging into the moral protection that the circumcised individual indirectly enjoys (for this is outside the scope of this essay), the protection against these two affections certainly justifies this custom —performed on the eighth day after the birth of the child. And, besides I have never seen (or heard of) a child dying as the result of being circumcised at the hands of a rabbi.

It would be quite in order, I believe, to mention here, that infective diseases among the Jews are comparatively mild and, in some specific disorders relatively rare, or absent. Still more is this wonderful since (as the world knows) the Jew is notoriously an inhabitant of the slums, on account of the weighing persecutions which he was subject to (and is, even to day, in some so-called civilized countries). I say, it is a wonder that he is not the paramount harborer of disease. Writers have ascribed this—very accurately, it will be seen—to their habits and modes of living. It is for this reason that I have brought this matter up to have due and fair consideration for its practical application to Public Hygiene.

Now for the second part of this system. Everybody is aware of the fact that the orthodox Hebrew abstains from the use of pork. The layman ridicules this custom—not unlike the way in which his contemporaries ridiculed Paracelsus. But will the learned man of medicine follow such a lay example? One of the very first agents known to be the cause of digestive troubles is the ingesting of undigestible, or comparatively undigestible food. We know that pork, on account of the superabundance of interfibrillar fat, is noted for the difficulty of its digestion. This fact

per se—without discussing the danger of Trichinosis from eating certain pork invaded with the *trichina spiralis*—is sufficient to throw the choice in favour of beef, or other such more easily digestible food.

It will further be remarked that almost all those animals, which are prohibited to be used for food, are carnivorous. The latter fact explains the preventive medicine entailed in this prohibition. The explanation is supplied by a knowledge of the starting-point of our modern study of Bacteriology— I mean putrefaction. It is too well-known, to reiterate the process, that all animal matter has a tendency to putrefy, and putrefaction of proteid food always takes place in the intestines of carnivorous animals. The products of this putrefactive decomposition are ingested, very often, with the meat; in fact, it is these very products of putrefaction that supply the flesh of carrion-birds with this distasteful odor (which thus unsuits them for food). And, I may say, there is "death in the pot" (as Dr. Osler has mentioned) for those who choose to slight this rule. Nor can any skeptic deny the merit of the command that all reptiles, such as the snake, the frog, and the toad, are to be abstained from. There have been cases reported of Cantharides poisoning as being (indirectly) caused by the ingestion of frogs. The interpretation of this lies in the fact, as now established, that frogs can consume, with impunity, insects, including the so-called Spanish Fly.

Let us now observe how the Hebrews prepare their meat, from the animals that are permitted them. It will be noticed that never will they eat the meat of an animal that has not been slaughtered by one of their rabbis. Still more, the animal absolutely must be killed in one certain and only way, viz., by cutting its throat. The detailing of the method is too diffuse to permit of being treated here. Suffice it to mention that the incision is planned so that the average ox or cow loses almost all its blood within three minutes or less, as I have timed it. But this is not all. For, before the rabbi may send the meat to the housewife, he is compelled to excise all the macroscopic veins that the meat is supplied with. It will be further seen that the housewife receives certain directions (which directions will still further remove the blood from the meat.) This consists of first soaking the meat in water for, at least, half an hour. After this, the meat is salted, and allowed to remain thus for another half hour. Then the meat is washed in water. Then, and then only, is the meat ready to be thrown into the pot, and cooked.

To the bacteriologist this elimination of all the blood is quite significant. He knows that blood (or blood-serum) is the best medium, so

far as is to-day known, in which to grow any bacterium. And, it is a well-recognised fact that twelve hours, or even less, are quite sufficient to permit of the formation of a beautiful culture of some of the more dreaded bacteria.

And yet, these are not all the precautions that are observed with regard to meat. Very often after every measure has been taken to kill the animal by the precise process prescribed by the Talmud, the animal is rejected. You will ask, Why is this? The answer lies in the following. After the animal is dead, the slayer is invariably directed to examine the heart and lungs, and also to make an inspection of the abdomen. I have seen animals rejected, because there was a tumour in the stomach wall, and, in a few cases, where the latter was perforated by some foreign body, such as a nail, etc., (thus opening the peritoneum to septic infection). Indeed, if there be a tumour or a manifest inflammation of any of the abdominal organs, or of the diaphragm, or of the thoracic viscera, the animal is similarly condemned. Again, if there be anything suspicious about the heart or the lungs, more especially the latter, there is a total objection to the consumption of any part of that animal's body. I remember an animal being refused for the reason that, on inflating the lungs, one of them leaked, and allowed a very tiny stream of air to whistle through, ever so slightly.

On the other hand, I remarked an animal that the rabbi declined because there was a dirty, grayish solid patch in one of the lungs, but the Gentile butcher was not so scrupulous, and sold the meat of the animal to his customers. Who knows but that he gave them their money's worth of tubercle bacilli, at the same time? And I was also present when an animal whose lungs contained over a pint of virulent-looking, greenish pus, was rejected by the rabbi, but accepted and profited by the Gentile (though not gentle) butcher.

Now, it cannot be said to be sufficient to reject the affected organs only, and to accept the muscles of the animal. After death it does not take long before the bacteria travel even into muscular tissue; for, although the capillary endothelium in muscle is protective when the animal is alive, one cannot say the same of it when life is extinct. Often, on perusing the weekly reports of the Public Hygiene Department of Montreal in regard to this, I used to notice so many livers, such a number of lungs, and a few animals totally, confiscated. Anybody who is aware of the fact that bacteria travel very often by the blood-stream should deem it unsafe to trust to the chances of the bacteria having failed to "diapedese" through the endothelium of the capillaries. And, once the effects of that specific bacterium are manifested on the particu-

larly susceptible organ, one cannot be safer than discard the whole animal.

Tuberculosis, the "White Plague," is partly transmitted by inattention to these important points. A study of the resisting powers of the tubercle bacilli still more strengthens this argument. Muir and Ritchie, in their text-book, state that "raising the temperature to 100°C kills the (tubercle) bacilli in fluids and in tissues," and then they go on to say that "in the case of large masses of tissue care must be taken that this temperature is reached throughout." It is well to note the latter statement. For, it happens not infrequently that the housewife not having time enough, fails to cook the meat completely. What man or woman can deny that he or she has not eaten unsufficiently cooked meat, scores of times? It is true that if the bacteriologist, himself, always did the cooking, he might be safe, but I should not like to trust the cooking of tuberculous meat to the ordinary, uninitiated housewife. There is also the danger that, in the butcher-shop, one tuberculous meat might infect clean meat.

In this conclusion, I take the liberty of stating the fact that statistics of the leading hospitals go to prove that Tuberculosis—and especially phthisis—is, on the average, rarer (proportionally) among the Israelites than among the Gentiles. The actual statistics are, again, too voluminous for this paper. But the evidence of such an authority in Medicine as Dr. Osler is far more than an iota in proving this assertion. He says:

"The influence of race (in Tuberculosis) is probably *not* due to any inherent differences but to the conditions under which the individuals live.....The Hungarians, Russians, and Poles, who are nearly all Jews, show a very low death-rate according to the United States Census." The general practitioner is apt to forget this fact, and in a doubtful case the diagnosis could certainly be reached more easily by a remembrance of this fact.

Another principle adhered to, even to-day, among Hebrews, is that after eating meat the orthodox follower waits five or six hours before he partakes of milk or food pertaining to it. But if he uses milk he has only to keep his patience for one hour before he may ingest meat. It is quite apparent that this regulation is for the purpose of preventing excess of proteid being taken.

These are, therefore, the more important of the dietary laws of the Jews. And, were it not that I must bring my dissertation to a close, I should be glad to describe also the various rules concerning the hygenic deportment of girls, married and pregnant women, and also of married

men. Indeed, the gynæcologist would find that it would amply repay him to inquire into the Hebrew customs, regulations, etc., with regard to obstetrics.

And now that I am bringing to a close this short (yet long) essay, I repeat that in no part have I attempted to unduly influence the reader, beyond letting him give his own decision of the facts as related and discussed. He will see that my attempt has been to still further fortify the truism, "An ounce of prevention is worth a pound of cure."

BRONCHIECTASIS WITH BACILLUS INFLUENZAE—REPORT OF TWO CASES.

BY

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The following cases have been under the care of Dr. W. Molson and Dr. G. Gordon Campbell during the past few months.

These cases are not brought forward as illustrating any new clinical or bacteriological phenomena, but because they are well-marked examples of a condition which perhaps is not sufficiently borne in mind by the majority of practitioners.

Case I.—G. B., aged 45. Indefinite history of "grippe," severe cough and expectoration; signs of pulmonary consolidation and cavity, fever, sweats, no tubercule bacilli in sputum. B influenzae in sputum. Progressive weakness and emaciation; death after six weeks' illness. Autopsy: anatomical diagnosis-bronchitis, bronchopneumonia, multiple miliary abscesses, bronchiectasis.

Patient, a Russian, admitted to the Montreal General Hospital, April 13, 1907, complaining of pain in left side and epigastrium, cough and expectoration, weakness and loss of appetite; no headache, no vomiting. For weeks before admission the patient had suffered from above mentioned symptoms and had been unable to work. He is poorly nourished and prostration is marked: skin moist, sweats frequent.

Respiratory system:—Patient suffers from severe cough and very profuse, fœtid, yellowish green, watery purulent expectoration. The cough is more marked in the morning and upon change of position, especially when patient turns from his back to his right side cough is at once induced with the expectoration of a large quantity of characteristic sputum.

Chest:—Very emphysematous; expansion poor and limited. Over the left lung posteriorly from the fifth rib down, the percussion note is

very impaired. Over this area can be heard metallic blowing breathing accompanied by loud blowing moist rales. Percussion over front of chest gives resonant note. Throughout both lungs breathing is very harsh, and loud moist rales are very numerous. At times the blowing quality of the breathing over the left lung is absent and replaced by very distant breath sounds. After violent attacks of coughing and expectoration the blowing breathing becomes more distinct. Repeated examination of sputum by different individuals was uniformly negative as regards presence of tubercle bacilli.

Patient gradually failed, cough, expectoration, sweats, dyspnœa continued and became more marked until upon May 12th, (six weeks after beginning of illness) patient died in a condition of most extreme emaciation.

Autopsy was performed by Dr. White, from whose report we quote. There are very firm adhesions over the posterior and external surface of left lung. Right pleural cavity is normal. The left lung is large and voluminous, very firm throughout except along the anterior border. The pleura over the posterior surface is greatly thickened and shows imprints of the ribs. The interlobar fissure is completely obliterated by firm adhesions. On section the tissue is airless and friable. The cut surface is of a reddish grey colour, studded with small greyish white nodules, each surrounded by a zone of hyperæmia. Many of these nodules chiefly in the lower lobe, are broken down, forming small abscesses. In the posterior part of the lobe, just above the root, are seen several large and small irregular-shaped cavities communicating with one another and with the larger bronchi. On further examination these cavities are found to consist of sacculated dilatations of the bronchi; they extend upwards through the interlobar fissure and communicate with smaller cavities in the upper lobe.

Right lung: the posterior half of all three lobes is consolidated. On section the consolidated part is found to be airless. The surface is studded with innumerable small irregularly-shaped nodules, varying in size from 3 to 6 m.m. in diameter, and each surrounded by a wide dark red zone. Many of the larger of these nodules are broken down forming small abscesses similar to those in the left lung. The anterior half is voluminous and crepitant.

Examination of the materials from the lungs is negative as regards the presence of tubercle bacilli. The B. influenzæ is found in the lungs. Microscopic examination of sections from the lungs shows no evidence of tuberculosis, but the characteristic lesions of broncho pnuemonia and miliary abscesses.

Case II.—A. W., aged 52. Report May 21st, 1907. Cough and fever for eight months; cavity and consolidation; profuse fœtid expectoration; no tubercle bacilli in sputum; B. influenzæ in sputum; progressive weakness and emaciation. Alcoholic and specific history. Patient has suffered from severe cough and expectoration since September, 1906. Poorly nourished; weakness marked. Respiratory system. Severe cough, especially upon change of position. Profuse expectoration; sputum has always been extensive in amount and of a sickening rather than a fœtid odour; it has been characteristically nummular, the small masses being suspended in a watery pus.

No tubercle bacilli found after repeated examination. Injection into guinea pig negative. B. influenzæ isolated from sputum.

There is dulness from the fifth dorsal spine in the mid-line and seventh rib in the posterior scapularline to the base. Over this area breath sounds are diminished and accompanied by numerous loud moist rales.

Repeated examinations of the sputum in both these cases always failed to demonstrate the tubercle bacilli stained by Gram's: however, large numbers of a very small bacillus decolourising with this method were found situated mainly within the pus cells.

In Case I., in addition to this organism, large numbers of Gram positive cocci and bacilli could be made out and Gram negative cocci.

Material taken from the lungs in Case I. at autopsy, showed a smaller number of Gram positive organisms, but remarkably large numbers of spirochætæ were seen which resembled in morphology the spirochætæ pallidæ. Cultures from these three sources—surface seeded upon blood agar plates after washing in saline solution in order to get rid, as far as possible, of extracellular organisms, gave a mixed growth made up largely, however, of the gram negative small bacillus noted in the smears. Other organisms isolated and differentiated were, staphylococci aureus and albus, strepto—and pneumococci, micrococcus catarrhalis and a short Gram positive bacillus growing in moderate sized creamy colonies producing a most fœtid odour. This last organism was found in Case I, especially in the culture from the lungs and apparently has no special significance.

The small bacillus grows in very minute colonies upon blood agar, growth being much more profuse and rugged in commensal relationship with the staphylococcus. Attempts at culture upon other media have been uniformly futile, although control cultures upon blood agar always gave profuse growth.

That the bacillus of influenza was the cause of the pathological processes we cannot definitely state, however, the presence of B. influenzæ in

large numbers in chronic pulmonary conditions is usually taken as being very suggestive of the primary infecting organs.

Owing to the death of Case I and the sudden departure from the hospital of Case II, we are unfortunately unable to report the result of the agglutination reaction.

Osler mentions in a brief manner the presence of late complications in chronic infection due to the B. influenzæ. Pfeiffer when first describing the organism, spoke of late serious effects of the infection.

In 1903, Lord, of Boston, isolated the B. influenzæ in a large number of subacute and chronic "coughs," some of which later came to autopsy.

In November, 1905, Boggs, at that time house physician with Dr. Osler, reported a series of six cases, two of them with autopsy, occurring in Dr. Osler's wards in the space of a few months. In all of these cases the pulmonary conditions, clinically and pathologically, were very similar and closely resembled these two cases.

Clinically, the course of the cases is in many respects the same as the ordinary chronic ulcerative form of pulmonary tuberculosis. There is usually a large amount of more or less foul-smelling sputum, hæmoptysis is not uncommon, there may be a history of chills and sweats, with progressive emaciation and weakness. The physical findings are those of acute bronchitis with cavity formation and consolidation. Repeated examination of the sputum will usually reveal the absence of the tubercle bacilli, and the presence in comparatively large numbers of a very small Gram negative bacillus which on cultivation will be found to be the B. influenzæ.

Blood from patients suffering from this infection will produce an agglutination reaction similar to that commonly made use of in the diagnosis of typhoid.

A CASE OF MOLLUSCUM CONTAGIOSUM.

BY

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Assistant Demonstrator of Anatomy, McGill University.

The patient was a gentleman, aged 65, who first noticed a small papule about the size of the head of a pin in the centre of his forehead in September, 1906. It continued to gradually enlarge until April, 1907, when he came to me and asked to have it removed. It presented the appearance of a small white "pearl button" papule the size of a pea, with a slight depression in the centre and an opening into the interior from which a cheesy material could be expressed.

After removal the specimen was hardened in formalin and paraffin sections made and stained with hæmotoxylin-eosin, Van Gieson's methylene blue and eosin and carmine. The sections resemble a racemose gland in appearance, showing diverging lobules opening into a central cavity. The lobules are separated by fine fibrous septa and lined by palisade cells continuous with those of the rete. The cells are cuboidae or rounded nucleated epithelium arranged in layers. The deeper cells, or those bordering on the rete, appear normal, but as one goes higher the cells change, some appearing swollen and nearly all show a clear halo around the nuclei, as if a shrinking of the protoplasm were taking place. Still higher, the nucleus seems to be pressed to one side of the cell and the protoplasm shows a fine reticular mesh. In the upper layers the nucleus cannot be detected and the cell takes a homogeneous bluish-violet stain with hæmotoxylin and is surrounded by a thickened capsule. These cells, the so-called "molluscum bodies," now separate from the mass and are seen lying free in the centre.

As molluscum contagiosum is somewhat rare, it may be of interest to give a short review of the subject.

Molluscum contagiosum is the name given to these growths by Bateman, who first described them in 1817, and although the majority of pathologists do not consider them contagious, the name is still used in preference to others such as sebaceum, epitheliale, verrucosum.

They occur as small growths like "mother of pearl shirt buttons" (a term used by Hutchison) and are generally multiple. Jacobs states that a single one is rare. They are round in shape, flat on top with a slight depression, in which is a small aperture leading into the interior, from which whitish cheesy material can be expressed. They are of firm consistence, and although usually sessile, may become pediculated. The colour is white or pink.

The common situations for them are the face—especially the eyelids, neck, chest, genitals and about the anus. They occasionally occur on mucous membranes as in a case reported by Abrahams of one on the tongue, and also a case reported by Dr. Colcott Fox.

Most authorities state that they never occur on the palms of the hands or the soles of the feet, but Balzer and Alquier report a case on the sole of the foot in a boy. Although they are usually small, they may reach the size of an orange and be mistaken for malignant growths.

They occur most frequently in the young and poverty seems to be a predisposing cause. In England they are believed to be contagious, and there are numerous facts to support this view such as the occurrence in several members of the same family, epidemics in asylums, (Allen reports a case in an infant asylum and inside one year forty-two

children were infected), infants lips to mother's breasts, (Dubois-Havenith reports a case), the use of Turkish Baths (Morris reports 6 cases from the same bath). Accidental inoculations, and successful experimental inoculations are reported by Vidal and Pick. An incubation period of from 10 days by accidental inoculation to 12 weeks by experimental inoculation is given by Stelwagon. The greatest difference of opinion prevails as to the origin of the growth and as to what the "molluscum bodies" really are. Rokitansky, Hebra and others considered the growth to be an enlarged sebaceous gland. Hutchison and Vidal also held this view, as they never occur in the palms of the hands or the soles of the feet where sebaceous glands are absent, but Caspary pointed out that such bodies are never seen in sebaceous glands, and Boeck says that chemical and physical tests showed that cells did not contain fat. Bizzozero and Manfredi state that these bodies were insoluble in hot ether or acetic acid.

Virchow believed the growth to arise from a hair follicle and likened the cells to swollen starch bodies, being a peculiar degeneration of epithelial cells. He considered the growth to be a lobulated granular epithelioma.

Kaposi was the first to consider the question of the contagiousness of the disease, but believed the bodies to be an alteration of cell protoplasm. Renaut believes that the growth originates from a sebaceous gland, but the bodies are produced by a hyaline degeneration in the perinuclear cell protoplasm. Geber states, "they are a hyaline degeneration of a hyperplastic growth of the interpapillary rete cells."

Unna calls the growth epithelioma contagiosum and says that the "bodies" are the result of a colloid or hyaline degeneration.

Weisser and others considered them to be coccidia developing in the epithelial cells. Benda thought that in some cases they arise from hair follicles, but considers the "bodies" to be parasites.

White and Robey, of Boston, made a very thorough investigation. They were unable to find bacteria in the sections and cultures only yielded staphylococcus epidermidis albus. They consider the growth to be the result of "two or three down-buddings of the rete Malpighii" and the molluscum bodies to be "a very extraordinary metamorphosis of rete cells into normal keratin. They conclude by saying "nobody has demonstrated up to this time any parasitic body in the growth and the change is not a colloid or hyaline degeneration but extraordinary metamorphosis into keratin."

It is quite evident then that the cause has not been ascertained. The different investigators are divided as to the origin. 1. Follicular or sebaceous. 2. Origin from rete. As to the contagion:—1. Contagious.

2. Non-contagious, and as to what the molluscum bodies are:—1. 1. Degenerated epithelial cells. 2. Parasites. The diagnosis is simple. Pearly growths with a central depression and small opening are characteristic. When they occur on the genital they have been mistaken for a hard chancre. They sometimes disappear spontaneously or they may suppurate and become destroyed.

Touching with pure carbolic acid or curetting out the contents destroys them. If these measures are not successful, they may be removed.

In conclusion I wish to express my thanks to Dr. C. B. Keenan, for advice in the pathological examination of the growth.

A CASE OF PERICHONDRITIS OF THE LARYNX, OCCURRING DURING THE COURSE OF TYPHOID FEVER.

BY

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AND

H. S. MUCKLESTON, M.A., M.D.,
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This case presents an unusual and serious complication of typhoid fever.

The patient, K. B., is a labourer, aged 21 years; he is a native of Austrian Poland, and has been in this country for a little over one year.

He was admitted to the medical ward of the Royal Victoria Hospital with typhoid fever, on October 31st of last year, in Dr. Martin's service.

The disease ran a severe course. His respiratory tract seemed highly vulnerable. In addition to the usual bronchitis, he suffered from repeated attacks of epistaxis, and twice developed broncho-pneumonia. Other complications were intestinal hæmorrhages, and subcutaneous abscesses. He was delirious for one week.

Laryngeal symptoms began to manifest themselves early in December; his voice became hoarse, and his breathing noisy. Examination of the larynx, three days after onset of the condition, showed an acute perichondritis with involvement of the cricoarytenoid joints; the left cord was fixed and ulcerated, the right limited in movements of abduction and adduction; both false cords were œdematous.

By the use of steam and the vapour of the compound tincture of benzoin, he gained temporary relief from his symptoms.

On the sixth day of his laryngitis, he began to show great inspiratory distress, his breathing becoming stertorous, his pulse rapid; his facial

Presented before the Montreal Medico-Chirurgical Society.

expression was one of great anxiety. These symptoms developed between three and five o'clock in the morning. A rapidly deepening cyanosis forbade further delay, and a tracheotomy was performed in the ward by one of us (H.S.M.).

The after course was wholly satisfactory. Although the wound edges sloughed a little, there was no cellulitis. The patient could swallow easily, and soon accommodated himself to the altered method of breathing.

This was the last complication he developed. After its relief, his recovery was steady. In two weeks he could sit up in a chair. The necessary tracheal dressings kept him in the ward longer than would otherwise have been the case. He was discharged on February 26th, 116 days after admission.

He attended the laryngological out-patient department more or less regularly after his discharge. Early in April he presented this picture: the true cords were fixed in adduction, but hidden in their posterior half by a smooth, globular mass, grey in colour, apparently adherent to the left arytenoid cartilage. His voice was very hoarse, but his articulation intelligible.

In the course of six weeks this mass underwent a slow change, gradually decreasing in size and uncovering the previously hidden part of the rima.

Repeated attempts at dilatation were made under local anæsthesia. Nothing larger than a laryngeal probe could be passed.

The patient was re-admitted to the hospital on May 20th. It was his own urgent wish to be rid of the tube.

His condition at admission was as follows: Except for a small button of granulation in front of the left arytenoid, the laryngeal mucosa was clear; the vocal cords were adherent in their anterior half, but movable to a limited degree posteriorly; through the narrowed rima the subglottic portion of the larynx appeared narrowed by a symmetrical thickening of the mucosa on each side.

Exploration of the trachea, under a general anæsthetic, showed a considerable narrowing of the lumen from granulations along the track of the tracheotomy tube.

All things considered, and notwithstanding the patient's own wishes, it is felt that further operative treatment for the relief of the stenosis is not justified.

His voice is much stronger than it was two months ago, and he should be able to do light work without embarrassament. He is advised, for the present, at least, to reconcile himself to wearing the tube.

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CANADIAN MEDICAL ASSOCIATION.

Prospects are bright for a good meeting of the Association in this city on September 11, 12 and 13, 1907. Notice of interesting papers from all parts of Canada have been received. The Address in Medicine will be delivered by Dr. H. D. Rolleston, physician to St. George's Hospital, London, Eng., and the Address in Surgery will be given by Dr. Ingersoll Olmsted, of Hamilton. The subjects for discussion in medicine and surgery will be respectively, Epidemic Cerebro-Spinal Meningitis and Enlargement of the Prostate. Many matters of vital interest to the society will be discussed, and a series of clinical demonstrations at the various hospitals has been arranged. By the courtesy of the Corporation of McGill University the Arts and Physics Buildings and the McGill Union have been placed at the disposal of the Association, and the meetings will be held in those buildings. The social part of the meeting has not been neglected.

ASYLUM APPOINTMENTS.

We have seen repeated editorial comment upon the speeches at the recent meeting in Toronto, at which Dr. Barbart, of New York, spoke strongly against the political aspect of appointments to asylums in Canada. This is ground that we have often before held in these columns, and we make no apology for reproducing the words used on that occasion by Dr. T. J. W. Burgess of Verdun.

"In an address, "The Insane in Canada," delivered at San Antonia, Texas, two years ago, as President of the American Medico-Psychological Association, I summed up my remarks by saying, that while with respect to custodial care and ordinary treatment, moral and medical, Canada, generally speaking, was well up to the times, she was doing little toward the solution of the many problems connected with the scientific aspect of insanity, and, in this respect, she presented a sorry picture when compared with the good work being done in many hospitals elsewhere.

With the erection of a Psychiatric Hospital, as outlined by Dr. Clarke, such a reproach can no longer be made, and, as a native of this province, I am proud to think that Ontario should be the first to take a step that will place her not only foremost as regards this Canada of ours, but foremost as regards the whole vast continent of America.

In praise of the wisdom of the Government for taking such an advanced view too much cannot be said; and here let me tell you that such an establishment will be not only a boon to the most unfortunate of all God's afflicted ones, the insane, but a true economy. Most of you, I have no doubt, know how very prone mental disorders are to become chronic and incurable; and some of you are probably aware that, once the acute stage is passed, lunatics are even more likely than the sane to live to a ripe old age, because protected within hospital walls from so many malign influences. But have any of you thought what each thirty or forty years of lunatic life costs, not only in actual outlay for hospital care but in the loss to the state of the wage-earning power of each insane person. It is simply an enormous sum and if the establishment of a Psychiatric Clinic increases the ratio of cures by even five percent., as I feel sure it will do, the institution will more than pay for its cost no matter how large that may be. For their choice of a superintendent for the new clinic the Government deserves no less praise. To Dr. Clarke we are indebted for our first training school for nurses for the insane, our first isolated hospital for the treatment of the sick insane, and, I think, for our first building for the segregation of the tubercular insane. In the length and breadth of the land no better or more experienced man could have been chosen. I wish I could say the same for the rest of their appoint-

ments. To get the best results in our hospitals for the insane all medical appointments thereto should be of men thoroughly trained and experienced in every branch of the specialty, and yet how rarely we see this rule observed. The appointment of outside practitioners to superintendentships for political purposes is a flagrant injustice to the patients, to the taxpayers, and to deserving juniors, of whom there are many in the service. No man should be given charge of an institution for the insane unless possessed of experience in the treatment of the insane, and no junior should be appointed unless he has had special training in psychiatry and has shown a penchant for the work.

I speak feelingly on this subject, gentlemen, because I myself have gone through the mill. Sixteen of the best years of my life were spent in the asylum service of Ontario, and when time and again I saw myself passed over in favor of some outside man, though the senior for promotion, I thought it was time to quit, which I did. This was, of course, under the regime of the late Government. Whether the present one would have treated me any better, I cannot say, but I think it extremely doubtful.

Do not think that I blame the Government entirely for the wrong done by the appointment of outside practitioners. The men who accept such positions without previous experience are equally blameworthy. As bearing on this point I would like to quote you a few words by one of the ablest writers, himself a physician, in the city of Montreal. They appeared in an editorial, "Insanity and Politics," published in the Montreal Medical Journal. In this the author says:—"We yield to none in our admiration of the general practitioner. We are aware of his energy, his resource and his fidelity, but not even the general practitioner will lay claim to a capacity for treating off-hand and to the best advantage grave lesions of the eye and ear, or of the more secret parts of the body. He should adopt the same attitude toward the brain. In time it will come to be a shameful thing for a general practitioner to accept a position for which he is not qualified, since thereby he is committing a wrong towards his colleagues and towards his patients."

To my mind the ideal asylum service is that which exists in New York State. There, all superintendents are appointed by the Boards of Management of the various institutions, and must be selected from men who have served at least five years in an institution for the insane, and have proved their capacity by passing an examination for a superintendency. The assistants are appointed by superintendents, their selection being restricted to the three names first on the list of those eligible for the vacancy. No step in advance can be won unless the candidate has had

previous experience in a lower grade of the specialty, and proven his fitness by passing an examination before promotion.

In conclusion, gentlemen, I would urge upon the profession that they should combine to right this wrong in the matter of asylum appointments. If only the medical men of this province, as a whole, would say, "We wish the system of the promotion of deserving juniors to be established," no Government dare gainsay them. It is for this Association, representing as it does the very pick of the profession to set the ball rolling, and I sincerely trust that ere the close of your sessions some steps towards that end will be taken. In this way, better than any other I know of, you will put yourselves in a position to attain the ideals for asylum work in Ontario, a height which I feel sure you all aspire to see to see the service reach.

THE LETTER AND THE SPIRIT.

Several years ago the North American Life Assurance Company subscribed $500 in one year to the National Tuberculosis Association, and the following year the same sum to the Gravenhurst Sanitarium, expressing their intention of contributing this annually. By a communication from the Commissioner for Insurance from Ottawa, they were forbidden to do this, and they ceased further subscription. In the Report of the Royal Commission on Insurance, these facts are stated, and if we mistake not, the findings of the Commission reflected on the Company for this proceeding. The manager stated that two policy-holders had derived great benefit from treatment at Gravenhurst and the company directors considered that it was a good investment to support the institution on behalf of the body of their policy holders.

We agree with them. Germany agrees with them. The magnificent sanitarium at Gerbersdorf was built by an insurance company who considered that thus they were making a good investment: this their government allows them to do. Their government has probably given a good deal of thought to the problem; our government, judged by results, has given none. Who is likely to be the better informed on the subject? Germany, we think.

Now it must be stated that the Commissioner of Insurance and the Government spoke according to the law and were technically right. So, according to the law, were the Priest and the Levite who passed by on the other side, while the Samaritan who did not trouble about the legal bond that tied him to his fellow man, became a by-word for disinterested

well-doing. We are tired of the government which says: "We cannot interfere with provincial governments:" we are tired of the provincial government which says: "It is the business of the municipality"—and we can commend scarcely any but the philanthropic private citizen. Is it the business of the Government? Certainly it is! We seem to think it the business of the Government to stimulate immigration, to build post-offices and armouries, to give prizes for architect's plans for new buildings—but to preserve the lives of Canadians, to stamp out a pest in our midst—to save lives that are, financially, worth several thousand dollars apiece—no, not a cent! And if you, directors of a company, seek to represent the best interests of your policy-holders, and at the same time take a share in the fight in which every man, woman and child in Canada must be concerned, if it is to be won,—we shall step in and prevent you! You are doing an unlawful act! The sooner the intellects of our statesmen wake to the fact that it is a national duty to preserve the lives of the nation entrusted to them the better. It *is* and *must be* the business of the Federal and every other government.

It is announced that Staff-Sergeant Ayres of the Royal North-West Mounted Police has left the force to become veterinary inspector under Dr. Hilton, who was recently appointed by the Dominion Government to represent the Dominion Department of Agriculture in Saskatchewan in the carrying out of the Contagious Diseases in Animals act. This work is controlled from Ottawa by Veterinary Inspector Dr. J. G. Rutherford. In most provinces the department has had special representatives, but in Saskatchewan and Alberta the work has hitherto been done by officers of the Royal North-West Mounted Police under the supervision of Inspector Burnett at Regina. The appointment of Dr. Hilton is thus a departure from the hitherto prevailing practice. It is, however, probable that most of the veterinarians on the staff of the Royal North-West Mounted Police will be employed under the Contagious Diseases in Animals act as heretofore and the appointemnt of Staff-Sergeant Ayres seems to confirm this view.

Dr. Hilton's headquarters will be at Regina. He will arrange for a separate organization and staff in each province as soon as possible.

The Supreme Court of Canada has rendered a judgment declaring the Alberta medical act, passed by the Alberta legislature and assented to on May 19th, *ultra vires* and reversed the judgement of the Superior Court of the North West Territories. The judgement affects a number

of medical men who registered in Alberta subsequently to the passing of the Alberta Medical Act, and previous to the announcement of the judgment of the Supreme Court of Canada with respect to its legality. It remains with the medical council to decide whether these men will be admitted as medical practiioners in Alberta. What the decision of the council will be is not yet known. It is very likely, however, that those who registered within the above mentioned date will require to register again and pass an examination of the medical council.

Dr. N. E. Mackay has resigned from the position of Professor of Surgery in Halifax Medical College. He is succeeded by Dr. Hogan. Dr. George R. Morse writing to the Halifax *Morning Chronicle*, July 5th, says:—

"When Dr. Mackay has time, I trust he may see his way clear to make a statement of the trouble between the College and himself. Various rumours are in the air, and we as graduates would like to know the real cause of his withdrawal from the school."

At the last meeting of the Ontario Medical Council held in Kingston, there was a discussion upon the advisability of asking all Canadian universities to extend the medical course to five years. When the Council meets in Toronto next year this important proposal will again be considered.

Dr. Pyne has resigned the office of registrar of the Ontario Medical Council a position which he occupied for twenty-seven years. During that long period he gained many friends and admirers by the courtesy and efficiency with which he performed his difficult duties. He is succeeded by Dr. J. L. Bray, of Chatham.

THE SCURVY AT MONTREAL IN 1534-5.

(Translated.)

In the month of December we became aware that a fatal disease had attacked the people of Stadacona and that, according to their own accounts, more than fifty of them had died. For that reason we shut them out of our fort and forbade them to come among us. In spite of this, the disease broke out among us in a surprising and mysterious manner. Some lost flesh and their legs became large and swollen, the sinews were drawn and turned black like coal; others became cov-

ered with purple coloured spots of blood. Then the disease spread to the hips, thighs and shoulders, to the arms and neck. All who were attacked had their mouths diseased and their gums became so rotten that the flesh fell away from their teeth down to the roots, and in nearly all cases the teeth fell out. The disease took such a hold on the crews of all three vessels, that, by the middle of February, there were not 10 sound men out of the 110 of our number. It was pitiful to see them and to think of the place in which we were, for one could not assist another. The savages came every day before our fort but saw few of our people about, for eight were dead, and more than fifty had no hope of surviving.

Our Captain, seeing our miserable state and the extent to which the disease had spread, ordered all to make prayers and supplications, and he had an image, in remembrance of the Virgin Mary, carried and placed upon a tree about the distance of a bowshot across the snow and ice; and he ordered mass to be said at that place on the following Sunday. And he ordered that all, sick or well, who could walk should go in procession, chanting the seven psalms of David and the Litany, praying to the Virgin that she would entreat her dear Child to have pity upon us. After mass was said and celebrated before the image, the Captain made a vow of pilgrimage to Our Lady of Roquemado; promising to go there, if God gave him grace to return to France. That same day Philip Rougemont, a native of Ambroise, died, aged 22 years.

And, inasmuch as the disease was unknown to us, the Captain had his body opened to see if we could discover anything to preserve, if possible, the remainder of the party. The heart was found to be white and withered and surrounded by a lot of reddish water. The liver was healthy, but the lungs were black and mortified, and all the blood was drawn back over the heart; for when the body was opened a great quantity of black, corrupt blood issued out from over the heart. The spleen also near the spine was a little affected for about two fingers breadth, as if it had been rubbed upon a rough stone. Afterwards we opened up one of his thighs. It was black outside, but the flesh within was fairly sound. When all this was over we buried the body as best we could. May God in His blessed mercy pardon his soul and all his sins. Amen.

And after that the disease went on from day to day to such an extent that at one time there were not three healthy men in all the crews of the three ships. In one of the ships there was not a single man able to go below deck to get anything to drink, either for himself or for a comrade. Sometimes several died at once, and, on account

of our weakness, we had to bury them under the snow, for we were not able to dig the frozen ground, so feeble were we and devoid of strength. We were also in great fear lest the people of the country should perceive our misery and weakness. To conceal the existence of the disease, when the savages came near the fort, our Captain (whom God kept all through in health) went out with two or three men, sick and well, following him in their sight. When they got outside the fort he made pretence to wish to beat them, and he shouted and threw sticks at them to send them back to the vessels, telling the savages by signs that he was keeping all his men at work in the ships; some to caulk, some to make bread and to do other necessary work, and that it was good for them to leave the vessels. The savages believed him and the Captain set the sick men to make a noise with sticks and stones, as if they were caulking.

Our people were so overwhelmed with this disease that they had almost lost hope of ever returning to France, when God in His infinite goodness and mercy had pity upon them, and gave them knowledge of a remedy against all diseases, the most excellent remedy which was ever seen or found in the world—as will now be related.

From the middle of November to the 15th of April, we were continually enclosed in the ice which was more than two fathoms thick. On land the snow was over four feet deep, so that it was higher than the sides of our vessels. This continued up to the above mentioned time . All our drinkables were frozen in casks and inside the ships, from top to bottom, the ice was four inches thick against the sides; and all the river was frozen as far as it was fresh water, to beyond Hochelaga. During this time twenty-five of the chiefest and best of our people died, while at one time more than fifty had given up all hope of life and all the rest were sick excepting three or four. But God in His blessed grace had pity on us and sent us the knowledge of the remedy to bestow health and healing in the way and manner now related.

One day our Captain, thinking on the height the disease had reached and the hold it had on his people, had gone out of the fort and was walking upon the ice when he saw a band of Stadacona people coming. Among them was Domagaya whom, ten or twelve days before, he had seen very ill of the same disease under which his people were suffering. At that time one of Domagaya's legs was swollen at the knee to the size of a two year old child and all the sinews were shrunk. His teeth were fallen out and his gums mortified and diseased.

The Captain seeing Domagaya sound and free from disease was glad in the hope of learning how he had been cured, so that some means

might be adopted for the relief of the crew. When Domagaya got near the fort the Captain asked him how he had recovered from his disease. Domagaya replied that the juice and residue of the leaves of a tree had cured him, and that it was a specific remedy for the disease. The Captain asked if there were any of these trees near that he could point them out, so that he might cure his servant who had caught the disease while staying with Donnacona at the Indian town, for the Captain wished to conceal the number of his people who were sick. Then Domagaya sent two women to find some, and they brought nine or ten branches, and showed us how to peel off the bark and the leaves, and how to put both into water and boil it all. Then they told us to drink the liquid every other day and to apply the residue to the swollen and diseased limbs and they said that this tree, which was called in their language Ameda, would cure them entirely of the disease.

Soon after the Captain made a brew for the sick people to drink, but none of them would try it saving one or two who drank it on chance. As soon as they drank, they experienced the benefit of what they found to be a real and evident miracle, for, after having drunk two or three times they recovered health, and were cured of all the symptoms with which they were afflicted. So much so that some of the crew who five or six years ago had contracted venereal disease were cured completely by the remedy. When the men saw and realized this, there was such haste to get it that they would almost kill one another to be first. In that way they used up in six hours a tree as thick and high as an oak in France. The remedy was so effective, that if all the doctors of Louvain and Montpellier had been there with all the drugs of Alexandria they would not have done as much in a year as this tree did in six days, for we employed it with so much success that, thanks to God, all those who would use it recovered health.

The Oxford University press has entered the field of medical publication. Mr. Henry Frowde and Messrs. Hodder and Stoughton have united their forces to produce a series known as the Oxford Medical Publication, and the announcement is made that in the choice of authors and subjects, the publishers have had the advantage throughout of the advice and assistance of William Osler.

The Oxford Medical Manuals are edited by J. Keogh Murphy, M.A., M.D., M.C., (Cantab.), F.R.C.S.; and G. A. Sutherland, M.D., F.R.C.P. Of these, nine volumes are now ready, and they deal with Diseases of the Larynx, Treatment of Diseases in Children, Surgical Emergencies,

Skin Affections in Childhood, Heart Disease, Anæsthesia, Diseases of the Male Generative Organs, Diseases of the Ear and Diseases of the Nose and Throat. The uniform price is five shillings net. Amongst other Oxford medical publications are Functional Nervous Disorders in Childhood, Operations of General Practice, Enlargement of the Prostate, Physical Diagnosis, and Cancer of the Womb. The same publishers are issuing Osler's System of Medicine, and they announce a system of Syphilis in five volumes edited by D'Arcy Power and J. Keogh Murphy.

Reviews and Notices of Books.

OSLER'S MODERN MEDICINE.—Modern Medicine, Its Theory and Practice. In original contributions by American and Foreign authors. Edited by WILLIAM OSLER, M.D., assisted by THOMAS MCCRAE, M.D. In seven octavo volumes. Volume II. Infectious Diseases. 800 pages of text. Lea Brothers & Co. Philadelphia and New York.

The second volume of this work follows closely upon the appearance of the first volume which has already gone through the press a second time, so great has been the demand for it. There are twenty-nine chapters in volume II. comprising eight hundred pages of text with a good index of twenty-eight pages. In addition to the common eruptive fevers, diphtheria, whooping cough, mumps, influenza, lobar pneumonia, acute rheumatism, asiatic cholera, yellow fever, plague and bacillary, dysentery are included. The study of infectious diseases is fittingly introduced by Ludwig Hektoen in the first chapter. Here one may find a comprehensive presentation of the important subject of infection, with due consideration given to infective agents, routes of infection, dissemination in the body, elimination, associated infections and results of microbic activity, etc., etc. In the discussion of Immunity Dr. Hektoen goes carefully into the development and action of antitoxins, lysins, opsonins, precipitins and agglutinins contrasting the former with the present theories and giving an important place in the explanation of immunity to chemical and electrical activity. The writer says in summing up a description of certain experiments that they "show that toxic and antitoxic action may take place without the immediate co-operation of the living organism and that the combination toxin-antitoxin follows chemical laws." Again, to quote him,—"Pfeiffer first believed that his antibodies could be activated only by something in

the body of living animals:".... but it has been "demonstrated that the destruction takes place in vitro also when normal serum is added to immune serum." This chapter closes with the following statement:—"Agglutination and precipitation depend, then, upon the action of salts upon the electrical charges that keep the particles suspended."

Thomas McCrae writes seven chapters, five of which are devoted to typhoid fever and one to typhus fever and one to relapsing fever. The article on typhoid fever affords the reader an opportunity of tracing the development of the knowledge of this disease from its earliest recognition to the present time. In it one can see that the writer strives for clearness of views not only in our diagnosis of individual cases but in our attitude to the disease itself, which is of greater importance. Clearness of teaching characterizes these five chapters and the degree of perspicuity can only be appreciated by a reader of medical literature. It is not alone the arrangement of the text the heavy type and paragraphing but Dr. McCrae's careful study of the disease in its various phases enables him with his directness of style to show the reader the most recent views on all the points discussed—in short the article on typhoid fever is, we think, the best yet written in English medicine. The emphasis given to the more or less permanent effects of typhoid infection upon the circulation and the nervous system is timely. Dr. McCrae is well able to speak of the typhoid spine and we welcome his remarks upon "typho-malaria" and share with him the hope that the profession will cease to use the term. This article and that on lobar pneumonia by Dr. Musser occupy over one-third (270 pages) of the volume.

The chapters on small pox and chicken pox are written by William T. Councilman—than whom we know of no one to speak more authoritatively upon these subjects. The article on small pox is amply illustrated and as one turns from plate III on through the pages of serial photographs one all but sees the patient in life before one. Vaccination is clearly discussed by George Dock, M.D.

In reading the articles on scarlet fever and diphtheria by Dr. John H. McCollom one must feel that the man who writes is an observer of no ordinary type, with convictions and a gift to express them. He writes as one who knows. After giving due consideration to the etiology of scarlet fever, he says:—"There has yet been no discovery that proves definitely that scarlet fever is a bacterial disease and the work of Mallory would seem to demonstrate that the cause of the disease is probably a protozoon." A conclusion which Dr. McCollom reaches not from literature but from personal observation and clinical study is, "that the period of incubation of scarlet fever is on an average ten to fourteen days with the limits from four to twenty days."

While the article on diphtheria is written mainly by Dr. McCollom, the pathology of this disease is from the pen of F. B. Mallory, M.D. Dr. McCollom's experience is not in accord with the statement that the bacillus of diphtheria is frequently found in the throats of perfectly well persons who have the care of patients ill with diphtheria.

In that part of his article devoted to treatment the writer advocates with caution much that is old—e.g. alcohol and corrosive sublimate and calomel. In post diphtheritic paralysis the expectant treatment with rest and feeding is practically all one can recommend. The results of serum therapy are strongly set forth. "No patient ill with diphtheria in the acute stage should be considered in a hopeless condition but anti-toxin should be given in large doses until he commences to improve or succumbs to the disease. When one sees a patient with membrane covering the tonsils and uvula, a profuse serous discharge from the nose, spots of ecchymoses on the body and extremities, cold clammy hands and feet, a feeble pulse, and the nauseous odour of diphtheria, and finds that after administration of 20,000 units of anti-toxin in two doses the condition of the patient improves slightly and after 10,000 units more there is a marked abatement in the severity of the symptoms, that when an additional 10,000 units have been given the patient is apparently out of danger and eventually recovers, one must believe in serum therapy in the treatment of less cases."

"When one sees a patient in whom the intubation tube has been repeatedly clogged and the hopeless condition changes for the better after the administration of 50,000 units, one cannot but be convinced of the importance of giving large doses in the very severe and apparently hopeless cases."

Measles, Rubella, The Fourth Disease, Erythema Infectioxum, Whooping Cough and Mumps are described in three chapters by Dr. John Ruhräh. To Influenza, Deugue and Erysipelas each is given a chapter written by Frederick T. Lord, M.D., Thomas D. Coleman, M.D., and James M. Anders.

The article on epidemic cerebro-spinal meningitis is by Dr. Henry Koplik. With McCrae he points out that Kernig's sign is not pathognomonic of meningitis, but that it may be seen in pneumonia and typhoid fever. As his own observation Dr. Koplik states "that when Kernig's sign is present and an attempt is made to straighten the leg against resistance there is intense pain, and a stimulation of the Babinski reflex occurs at the time of the attempt to straighten the leg on the thigh against the resistance." Associated mydriasis simultaneous with the

movement of a rigid neck in an attempt to straighten the head is to be taken as significant of meningitis. Macewan's tympanitic percussion note over the frontal and parietal regions as a sign of hydrocephalus is frequently alluded to. We miss in Dr. Koplik's article a discussion of the prognosis and sequelæ of this important disease.

In Chapters xxi, xxii and xxiii extending over one hundred and ten pages, Drs. John H. Musser and George W. Norris give a comprehensive review of lobar pneumonia with interesting illustrations, tables, comparisons and discussions. The treatment is well reviewed and the chief suggestion is that in order to successfully combat the conditions present "we must play with Nature's cards." The writers indicate how this may be done in accordance with our present knowledge.

Toxæmia, Septicæmia and Pyæmia in Chapter XXIV. are taken up by Richard M. Pearce, M.D.

An article in Modern Medicine on Acute Rheumatism by Frederick J. Poynton, M.D., at once attracts the attention of all who have followed the work of this writer and that of others in their efforts to discover the cause of rheumatism. Due consideration is given to the researches and results of others some of whom receive friendly though adverse criticism at his hand. Poynton's stand on the bacteriology of acute rheumatism seems to be summed up in these words. "Acute rheumatism is a specific disease and so far as our knowledge goes, owns but one exciting cause variously called, a diplococcus, streptococcus or micrococcus The bacteriologist would wish, perhaps, to go further and say that this diplococcus is specific; and it may prove to be the case and is probable: but the discovery of a specific test for a micro-organism is a different matter to establishing it as a cause of a specific disease."

The balance of the volume is taken up with a chapter on Asiatic cholera by W. P. Dunbar, M.D.; one on Yellow Fever by James Carroll, M.D.; one on Plague by W. J. Calvert, M.D.; and one on Bacillary Dysentery by K. Shiga, M.D.

Volume II like its predecessor is an attractive book reflecting much credit upon the contributors and the publishers. The print is good, the plates and illustrations, while perhaps few in number, are especially well done and the editor-in-chief and his assistant are to be congratulated. Other important infectious diseases will be taken up in another volume. W. F. H.

A Treatise on Orthopaedic Surgery. By Royal Whitman, M.D. Third Edition, 871 pages, 554 engravings. Lea Brothers & Co., 1907.

The third edition of Whitman's treatise on orthopædic surgery is now before us. It is on the whole a valuable contribution to the literature

of the subjects discussed in it but is, like the former editions, a little disappointing and most of the criticisms made of the second edition in the pages of this journal apply again to this the latest edition of Dr. Royal Whitman's book. It deals with only a limited number of the affections described as in the scope of this branch of surgery by the American Association of Orthopædic Surgeons of whom the author was at one time president, which seems from an orthopædist's point of view, to be unfortunate because if this branch of surgery is to be isolated and considered a specialty, and it is open to doubt whether it is well to do so, it is certainly well to occupy the whole territory claimed for the specialty.

In orthopædics, perhaps more than in all branches of surgery, have the Americans maintained a strong position. The work done in orthopædic clinics taken generally comparing most favourably with that done elsewhere, and of the members of the American Orthopædic Association few have had greater opportunities than has Dr. Whitman and few have shown in their publications and the work done by them greater thought or a greater spirit of investigation.

Although the frequent use of the ego in a literary production has its disadvantages, the treatment of any subject from a personal point of view increases the interest taken in such dissertation, as, for instance, with what interest would the practitioner of orthopædic surgery have read a criticism by Whitman on the treatment of Pott's disease, and its most annoying resultant paralegia, by hyper-extension directed to the gradual reduction of the deformity! Whitman felt the necessity of straightening or extending the spine so far back as 1892, when he wrote, "Our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of the disease;" and again in 1893 he wrote, "the object of treatment is the prevention of deformity not only because the effect of treatment is estimated by the degree of ultimate deformity rather than by the survival of the patient, but because deformity itself, after complete recovery from constitutional and local disease, by its distortion and compression of vital organs, is a constant source of weakness and danger." Yet in this, the third edition of his work, published indeed, over fourteen years after these statements were made, the author does not furnish his readers with any clear or definite estimate of the advantages of the methods for the gradual reduction of deformity, which methods have been in use for nearly fourteen years, although on several occasions he refers to the efficacy of such forms of treatment,and although as late as 1901, he wrote, "the importance of checking the destructive process has been

emphasized and the routine of treatment is likely to be more or less modified in the future to meet this requirement." With what interest also would the surgeon, taught by these words to look forward to a modification of the older methods of treatment, have studied statistics comparing, we shall say, cases of Pott's disease of the lower dorsal vertebræ treated after the methods of Goldthwait with those treated by Sayer's method.

Of great interest are his words on the operative treatment of tuberculous joints. Orthopædists of recent years have been freely criticized by their colleagues in general surgery because of their growing tendency to operate on joints affected by tuberculosis. Orthopædists have been adversely critized for their almost universal custom of correcting deformities of knees and hips even in the acute stages of tuberculous disease of these joints, and for their less frequent endeavours to eradicate the disease by operative interference, especially in adult patients suffering from tuberculous lesions. The ingrained prejudice of the general surgeons against such procedures is well combated in these words:—

"Gibney, contrasting two equal periods of thirteen years of service at the Hospital for Ruptured and Crippled, in the first of which no operations were performed on tuberculous subjects, states that in his opinion the deaths from this source have been proportionately no greater during the period of active surgical intervention than before. And an investigation of the causes of deaths among the patients treated at the New York Orthopedic Dispensary and Hospital during a period of twenty years showed that at least 25 per cent. of these were due to tuberculous meningitis." During this period there had been, practically speaking, no operative intervention, yet the proportion of deaths from this cause is certainly as great as in any statistics that have been reported. It would appear, therefore, that the danger of dissemination is not sufficient to deter one from performing any operation that seems to be indicated by the character of the local disease or by the general condition of the patient."

And then almost as illustrating the position taken Whitman remarks in his discussion of the treatment of tuberculous disease of the hip that plaster of Paris may first be applied under an anesthetic for the purpose of relaxing muscular contraction. The immediate reduction of deformity is free from danger.

The discussion of the diagnosis of Pott's disease of the spine and the general consideration of this affection is beyond reproach but the writer does not lay sufficient stress on the importance of the open air treatment

nor does he discuss treatment by tuberculin which would have been particularly interesting since the work of Wright.

The chapter on gonorrhœal arthritis is again open to criticism. Treatment of the affection itself is too briefly considered.

Whitman cannot be accused of dispensing comfort or confidence to the surgeon treating the so-called rheumatoid diseases nor does he quote very largely from those who might give a little help.

"Motion has few supporters in tuberculous disease" well condemns the practice of certain European theorists whose suggestions are too liable to be considered inspired because of that notoriety which any new thing is liable to give to its promoters.

The chapter devoted to lesions of the hip joint is excellent. The work is full of most valuable statistics made from the records of the Hospital for the Ruptured and Crippled. The description of the lesions of the knee-joint is also perfection.

The chapters devoted to congenital dislocation at the hip are worthy of the pen of the surgeon who has done so much in the treatment of this affection.

The only criticism that can be made of the section devoted to deformities of the foot is that the author's methods are too prone to overshadow the ways of all others. If Whitman had given the methods of others in this book and followed these with a description of his own methods and his reasons for adopting them the work would have been of far greater interest, but in spite of its faults this treatise will rightly be highly appreciated by all interested in this branch of surgery.

Modern Methods of Diagnosis in Urinary Surgery. By Edward Deanesley, F.D., B.Sc., London, F.R.C.S. Hon. Surgeon Wolverhampton and Staffordshire General Hospital. H. K. Lewis, London, W.C. 1907.

This little book of something under 100 pages is written, as its author tells us, by a general surgeon for the general surgeon and with the purpose of placing more clearly before him the newest instruments and diagnostic methods in diseases of the bladder and kidneys. There are in all but four chapters: with the first, dealing with "urinary symptoms" we have no criticisms to offer.

The remaining three chapters, dealing with "abnormal urine," "physical examination" and the "differential collection of urines," somewhat perplex us. They say either too little or too much. Too little if the author's purpose is to bring clearly before the general surgeon's mind the accuracy and method of the newer instruments: too much if

he intends him not to practice what the writer preaches. Only in a few instances will examination of the urine alone reveal the source of blood and pus, says the author and we readily concur, hence learn to make use of the cystoscope and its allies. "Nephritis, acute and chronic may affect a single kidney independently," possibly very true but too sweeping a statement to stand without more authoritative support than the bald words: "Essential renal hemorrhage exists:" we wish we could be equally certain, not a word on present and past controversies on this point. The use of methylene blue, of phloridzin, the determination of the freezing point of urine and blood are all noticed but the important point that these methods are incomparably more useful, when made use of in relation to separated urines is dismissed in just these words. Surely on this matter an example or two might have crystallized the meaning of the whole latter part of the book.

The advocacy of the cystoscope is sound, Mitze's instrument comes in for its usual praise; as the author says: Rules can be given for the use of the cystoscope but diagnosis is a matter of experience.

Finally the separation of urines is discussed and herein lies the kernel of the book. The author is a warm advocate of the segregation, Luys in particular, and has evidently, had exceptional success in its use because he fails to give us examples of his findings that we may judge for ourselves. Why we do not equally endorse this instrument may be stated in a very few words and receives support, we venture to think from this chapter itself. Briefly then it is equally as painful or disagreeable as the ureteral catheter: it is more difficult to introduce than the cystoscope, it requires more attention when in position: it delivers urine contaminated by the bladder: except in the hands of an expert one is never sure that the urines are effectually separated and even in his hands this doubt must frequently exist. It is, however, easier to introduce the segregator into the bladder than the u'eteral catheter into the ureter and consequently the instrument exists.

With several statements we concur fully e.g. general anæsthetics are to be avoided as they inhibit or diminish the secreting power of the kidneys; slight variations between the separated urines are not of pathological significance. We wish the writer had gone more into detail in discussing those diagnostic methods; the strongest part of the work is the last chapter, where his personal experience more nearly touches us and we could wish he had brought this more into prominence in earlier chapters. We offer him our congratulations on bringing this little known subject before the profession.

R. P. C.

THE ABDOMINAL AND PELVIC BRAIN WITH AUTOMATIC GANGLIA. By BYRON ROBINSON, B.S,. M.D., Chicago, Illinois, Professor of Gynecology and Abdominal Surgery in the Illinois Medical College, Consulting Surgeon to the Mary Thompson Hospital for Women and Children, and the Woman's Hospital of Chicago. Published by Frank S. Betz, Hammond, Indiana.

Not since reading Hilton's Rest and Pain, thirty years ago, have we read such a thoughtful book as this one on the inter-relation of diseases and symptoms due to the part performed by the great sympathetic nerve. In his preface the author says: I am aware that the present volume does not belong to the stereotyped, systematized text books; yet I am confident that the thinking reader will find in its pages ample reward for its perusal. The book is entirely original both in text and drawings both of which, but, especially the latter, we can well believe required a vast expenditure of time and money. The Chapters XXIX on Constipation, XXX on Shock, and XXXIX on Splanchnoptosia or falling of the viscera are especially interesting. He is one of the few writers who understand that constipation can be cured better without drugs than with them and more especially by the influence of the mind through the sympathetic. He points out that a person can establish almost any definite hour for regular defecation. Constipation, he says is a neurosis of the fæcal reservoir. He also points out how defective nutrition from poor blood is followed by first lazy and then weak muscular action of the bowel walls.

The chapter on the significance of sudden abdominal pain is also most interesting. To quote just one paragraph. "Probability is the rule of life and it is just as applicable in diagnosing sudden abdominal pain as in other matters. For example, when a man is attacked with sudden abdominal pain and vomiting with rise of temperature, pulse and respiration, the probability is that it is appendicitis—not perforation of the gastrium, enteron or colon, for that occurs one hundred times less than perforation of the appendix." Then again he says: "local rigidity of the abdominal muscles indicates adjacent disease of organs supplied by the same nerves as the muscles, which exercise a protective agency, to preserve rest for damaged tissue, to assume repair, and to prevent further damage from motion, e. g. distribution of sepsis by peristalsis. Any visceral disorder is reported to the spinal cord which is at once emitted to the abdominal wall for protective purposes (muscular rigidity)."

The sudden acute abdominal pain arising from strangulation of a loop of bowel by peritonitic bands is difficult to interpret and seldom diag-

nosed. It may be asserted that when a patient is suffering from some grave disease, manifest by sudden acute abdominal pain, the nature of which cannot be interpreted, an early exploratory laparotomy is justifiable and demanded. He then gives instances from his own large experience of the many conditions found, many of them the least expected but all showing that without an early exploratory laparotomy all of the patients must have died. It is also evident that the man who makes the exploration must be prepared to resect the intestine if it be found gangrenous or to deal with a perforated ulcer of the stomach, or a ruptured tubal pregnancy of a twisted ovarian cyst.

The writer goes most minutely into the nerve supply of the organs occupying the abdominal cavity illustrating his observations with an unusually large number of drawings, those of the tractus urinarius being unique. Want of space prevents us from writing more but there is hardly a page of the six hundred and fifty of which the volume is made up that does not contain some practical deduction which would be of service in our daily practice.

A. L. S.

A Treatise on the Principle and Practice of Medicine. By Arthur R. Edwards, A.M., M.D., Professor of Medicine and Clinical Medicine in the Northwestern University Medical School, Chicago. Illustrated with 100 engravings and 19 plates, and containing 1,328 pages. Lea Brothers & Co., Philadelphia and New York.

This book is in its first edition. The author, impressed with the wide range of modern practice of medicine, makes the effort to thoroughly systematize his work, and endeavours to impress upon the book the following characteristics:—blending causative pathology with consecutive clinical features, giving reasons for facts, subordinating exceptions to rules in clinical findings, and avoiding allurements of typical clinical pictures and dogmatic generalization—ever holding in his mind the conception that while dealing adequately with scientific theories and principles, the final object of the book is the application of knowledge to the cure or alleviation of disease.

The above is practically the author's "vorwort"—setting forth the aim and object of his work. How fully he has realized this object can be best understood by a careful review of the pages.

The contents are comprised under eleven sections. These are specific infections; diseases of the circulation; disease of the different systems; constitutional disease; intoxication and sunstroke, and diseases due to animal parasites. In this section (XI) are included malaria and

amoebic dysentery, already described under the first section, that of acute infections and trypanosoma.

Infections of uncertain origin, treated of at the end of section I, include febricula, glandular fever, miliary fever, Weil's disease, milk sickness, mountain fever, and foot and mouth disease.

After a general review of this book one must conclude that the author is to be congratulated on the work. He has written a good book. One is struck by the large number of authorities quoted, as the names in the text indicate; by the clear divisions of the subjects discussed, very helpful to students, and by the careful attention given to treatment—both general and symptomatic.

The illustrations are very well done and most helpful. There are a few pages, bound in doubtless by mistake, between 630 and 631, and 640 and 641, confusing the reader. The paper in the book is of that very heavy sort, with glossy surface, increasing unnecessarily the weight and making the reading of the text very difficult except in certain relations to the light. We have said this book is in its first edition. As truly we may say that it should pass through many editions.

A Text-Book of Pharmacology. By Torald Sollman, M.D. Second Edition, thoroughly revised and greatly enlarged. Philadelphia and London. W. B. Saunders Company, 1906.

As the author rightly says in his preface, the extensive recourse to animal experimentation has brought about during the latter half of the century just closed, the development of the study of the action of drugs along lines scarcely dreamed of formerly. With this development has come an improvement in the methods of teaching. The student no longer depends on works on general therapeutics for his knowledge of pharmacology, but in addition to modern text-books devoted to this subject alone he himself proves in the laboratory the action of many of the drugs in every day use. The second edition of Dr. Sollman's valuable work comes to us thoroughly revised and greatly extended. Part I deals with pharmacy, pharmaceutic methods and preparations, incompatibilities, etc., with a chapter on toxicology. This portion of the book is concise and well adapted to the needs of the student who has, perhaps, been too heavily burdened with this work in the past. In Part II. devoted to pharmacology, therapeutics and materia medica, we find the arrangement similar to that in the first edition with the enlargement of some sections and the addition of certain new drugs. In this new edition, as in the first, Professor Sollman has given us the benefit of his wide experience as a laboratory worker. The

final section of the work is of the utmost value to student and teacher alike. In addition to a chapter on chemic exercises and one on experiments on frogs and mammals there is a description of the author's laboratory course in pharmacology together with a list of the necessary equipment for such a course. While appreciating the value of laboratory instruction it seems to us that there is danger of too much time being given to the experimenting with drugs which have little or no therapeutic value. The work as a whole is a valuable addition to our present meagre stock of text-books and should be of interest to the general practitioner as well as to the student.

J. W. S.

Ulceration of the Cornea. By Angus McNab, M.B., F.R.C.A., etc. London: Baillière, Tindall & Cox; Toronto: J. A. Carveth & Co. Price, $1.50.

Mr. McNab has produced a most valuable little work on Ulceration of the Cornea, in which he has attempted, as far as possible, to classify the ulcers according to their bacterial findings. This classification without doubt is the truly scientific one, and, as our knowledge of the various germs increases, it is bound to be the classification of the future. It is only by following this line of diagnosis that a truly rational and successful treatment of ulcers of the cornea can be instituted. A great deal has been done already in this direction, but there are still many gaps to be filled. In addition to dealing exhaustively with the bacterial and pathological changes, Mr. McNab describes the treatment to be followed out in the various types of ulcer, having regard to the main sources of infection as being found in the nose, from which a secondary dacryo-cystitis is set up. He urges in most cases of intractable sac trouble the excision of the lachrymal sac, although this appears to be in many cases a rather heroic form of treatment. The last chapter or two of the book is devoted to bacteriology and to the various operations on the sac and cornea, as also the removel of material from an ulcer for examination purposes. We can only speak in terms of the highest praise of the book and recommend it strongly to the profession.

J. W. S.

The Care of the Baby. By J. P. Crozer Griffith, M.D., University of Pennsylvania. Fourth Revised Edition. 12mo of 455 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $1.50 net.

Four years ago the present reviewer had occasion to commend the third edition of this book. The fourth even more fully deserves commendation. The teaching is sound and the practice sensible.

Modern Surgery: General and Operative. By J. Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Fifth Revised Edition, enlarged and reset. Octavo volume of 1283 pages, with 872 illustrations, some in colours. Philadelphia and London, W. B. Saunders Co. Canadian agents, J. A. Carveth & Co., Toronto, Ontario. 1907. Cloth, $5.50 net. Half morocco, $7.00 net.

For quite a number of years, Da Costa's surgery has been among the text-books recommended to the students by the teaching staff of many of the medical colleges of America. This may safely be taken as a favorite criticism of the merit of the book. The number of the editions called for in the past and the present demand, indicate its popularity. It is essentially a one-man's book, and as such, it gives in a singularly clear and attractive form, the knowledge gained from a long and varied experience in both the practising and teaching of surgery. The author's aim has evidently been to present a practical up-to-date book, a happy medium between the complete but cumbrous text-book and the incomplete but concentrated compend, and we congratulate him. A somewhat extensive bibliography is placed concurrently in the text, which adds materially to its authoritativeness and usefulness. The special subjects of ophthalmology, rhinology, otology, laryngology and gynæcology have not been taken up, and in orthopedic surgery, only those conditions which must necessarily be frequently met with are considered. Fractures are treated extensively, the practical importance of this subject calling for a full discussion. Operative surgery is wisely confined to the commoner procedures required by the average practitioner. The surgery of the stomach, duodenum, appendix, prostate and thorax has been considerably added to and represents the modern ideas on these subjects. The illustrations are quite adequate and as practical as the text.

W. L. B.

Chemical Pathology; being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Assistant Professor of Pathology in the University of Chicago, and in Rush Medical College, Chicago. Octavo of 549 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $3.25 net. Canadian Agents: J. A. Carveth & Co., Toronto.

This book has filled in a gap that has long existed in the English medical literature. Although pathology has given to medicine innu-

merable works concerning the appearance and nature of disease, the subject of the chemical changes taking place in altered metabolism has not been sufficiently dealt with. There are, however, a great number of chemical studies of disease scattered through the literature of different languages, and the author of this work has set about the task of compiling these under their various sub-headings.

The subject of physiological chemistry itself being in its infancy, the ordinary student or practitioner is not conversant with it. The first half of this book, therefore, has been taken up in reviewing the changes taking place normally in a cell of the body and of its products. The question of bacterial ferments and toxins is also studied, pointing out the practical application of these to human pathology. The sub-studies arising out of the subject of immunity occupy several very interesting chapters, as does also the work on the chemistry of tumours and that on auto-intoxication.

The book is to be recommended to those who do not care to enter too deeply the intricate chemical problems of metabolism. The bibliography of the individual studies is quite extensive.

A Dictionary of Medical Diagnosis. By Henry Lawrence McKisack, M.D. London, Bailliere, Tindall and Cox, 1907. Canadian agents, J. A. Carveth & Co., Toronto.

Dr. McKisack is physician to that excellent institution, The Royal Victoria Hospital, Belfast. He has written a book which is new in medicine. It is a study of the language of the signs which may be observed in the person of a patient, and their significance considered strictly from the observer's point of view. The methods of examination are those which may be fairly considered clinical, and exclude that routine which is performed when the body is upon the post-mortem table; though, in a technical sense that measure is "clinical" also. The subjects are dealt with in alphabetical order, as in a dictionary and the significance of each phenomenon is recorded. The illustrations are admirable. This book is likely to become a standard in the same sense as a well-known dictionary is, and it will be a stimulus to careful and keen observation. The record of signs is very complete, and the interpretation is done with much wisdom.

Diseases of the Rectum. By W. C. Brinkerhoff. Orban Publishing Company. Chicago, 1907. Price, $2.00.

One does not require to be very astute or to read far to come to the conclusion that this is an extremely foolish book. It appears to deal largely with "the injection method" of treating hæmorrhoids, and the

author forestalls criticism by comparing himself with the martyrs who have suffered from the denunciation and ostracism of the "professors" of their time. The case reports are amusing. One grateful patient presented to "the doctor" a package of bills, "though there was no account in the books against him," and bore this remarkable testimony: "I wish it was ten times as much." Another patient who was advised to have his hæmorrhoids treated by this method made the judicious observation: "Young man, I don't see much use of fooling with them." That is our own opinion of the method—and of the book.

A Text-Book of the Practice of Medicine; for Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, etc., etc. Second edition, revised and enlarged; 1,132 pages. Illustrated with 131 engravings and 11 plates in colours and monochrome. Lea Brothers & Co., Philadelphia and New York.

The author of this work is widely known to practitioners and students through his books on Practical Therapeutics and Practical Diagnosis—both having already gone through several editions. With the appearance of the second edition of Dr. Hare's Practice of Medicine the writer "desires to express his appreciation of the cordial reception of the work since its first appearance." Coming from the hands of one who has spent twenty-one years of active hospital and private practice, constantly teaching clinical medicine and therapeutics, the reader is led to expect good doctrine as he peruses this work, and as he may have occasion to turn to it from time to time, he will not be disappointed. The work has been enlarged and revised, and the latest views accepted as reliable are embodied in its pages. It includes several chapters on tropical medicine. As in another recent publication of Lea Brothers, we find the glossed paper very trying in certain lights.

W. F. H.

Materia Medica for Nurses. By George P. Paul, M.D. 12mo of 240 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $1.50 net.

The modern nurse seems to be an industrious person, if one may judge by the number of books which are being issued for her instruction. It seems incredible, however, that a young woman in the spare moments of two or three years could master so much. The author has done his work well, and even a student of medicine would be sufficiently accomplished in materia medica if he knew all which it contains. The book is easy to read. It is not a mere compilation. The information is accurate although condensed.

THE PRACTICAL MEDICINE SERIES. Edited by GUSTAVUS P. HEAD, M.D. Vol. I. General Medicine. Edited by FRANK BILLINGS, M.D. and J. H. SALISBURY, M.D. Vol. II. GENERAL SURGERY. Edited by JOHN B. MURPHY, M.D. Vol. III. THE EYE, EAR, NOSE AND THROAT. Edited by CASEY A. WOOD, M.D., A. H. ANDREWS, M.D., and GUSTAVUS P. HEAD, M.D. Series 1907. Chicago. The Year Book Publishers.

The present volumes are three of a series of ten issued at about monthly intervals, and covering the entire field of medicine and surgery. Each volume is complete for the year prior to its publication on the subject of which it treats. This series is published primarily for the general practitioner, but the arrangement in several volumes enables those interested in special subjects to buy only the parts they desire. We have frequently mentioned this Series and always with praise. We desire now to say that the books are improving as the series extends. The material is well digested, not merely collected in a mass. The references are full and the selection is wise. A practitioner who reads these ten volumes will know the best which has been done in medicine for the year.

A MANUAL OF PERSONAL HYGIENE. Edited by WALTER L. PYLE, M.D., Assistant Surgeon to the Wills eye Hospital, Philadelphia. Third Revised Edition. 12mo of 451 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $1.50 net. Canadian agents, J. A. Carveth & Co., Toronto.

The second edition of this book was received by the present reviewer, 28th December, 1904, and was mentioned in this JOURNAL, February, 1905. In the present or third edition, the work has been thoroughly revised and numerous additions have been made, including an illustrated system of home-gymnastics, a chapter on domestic hygiene, and an appendix, containing the simpler methods of hydrotherapy, thermotherapy, and me- and emergencies. A concise glossary of the purely medical words in the text has been prepared for the convenience of non-medical readers. In our judgment the book will have an enlarged usefulness in its present form.

INTERNATIONAL CLINICS. Vol. II. Seventeenth series. Edited by W. T. LONGCOPE, M.D. J. B. Lippincott Company, 1907.

This is the second volume under the new editorial management. All the features which made the previous volumes so well known, and so

valuable are retained. The plates are as numerous and the text as good—which is saying all that requires to be said.

A Manual of the Diagnosis and Treatment of Diseases of the Eyes. By Edward Jackson, M.D., Professor of Ophthalmology in the University of Colorado. Second Revised Edition. W. B. Saunders, Philadelphia.

This is one of the most interesting and reliable of modern works on Ophthalmology. While it is primarily intended to meet the needs of the general practitioner of medicine and the beginner in eye surgery, any Ophthalmologist will be amptly repaid by a perusal of its contents. In this second edition the subject has been brought up to date in its every phase, and has been treated in a thoroughly sound manner.

W. G. M. B.

On Treatment. By Harry Campbell, M.D., F.R.C.P. London, Bailliere, Tindall and Cox, 1907. Price, $1.50. Canadian agents, J. A. Carveth & Co., Toronto.

This book is in reality a monograph of over 400 pages, in which the author treats certain questions of therapeutics from his own point of view. The plan is so good and the execution so excellent, he may well receive the indulgence of the reader, which he asks in the modest little preface dated at Wimpole St., May, 1907. It is a book by a man who is at once a scholar and a physician; and teachers of medicine would do well to heed the harsh, yet true, things which he says of the results obtained by the excessive teaching of "minute anatomy, speculative physiology, and physiological therapeutics." Hospital Boards might also gives attention to his comment upon promotion "by the pernicious principle of seniority." On treatment the book is full of matter, rich with experience and presented with skill. It is enough in itself for a summer's reading.

Medical News.

ONTARIO MEDICAL ASSOCIATION.

We are much pleased to be able to state that the last meeting of the Ontario Medical Association was one of the best which that society has known. There were present 244 members, besides a certain number of guests. Of these there were 44 new members.

The history of this association is in some respects peculiar. During the early years it was in a flourishing condition, but after 1889 interest

in the meetings appeared to decrease for a number of years. The officers for 1907 showed a very praise-worthy determination to make this meeting a pronounced success. We believe, however, it is only simple justice to say that the marked success of the meeting was largely due to the untiring work and the great popularity of the society's president, George A. Bingham.

The Committee on Papers and Business, under the Chairmanship of Dr. Gibb Wishart, did exceedingly good work in arranging for thorough discussions on eminently practical subjects, and were fortunate in obtaining the assistance of Dr. Crile, of Cleveland, who delivered the address on Surgery, and Dr. Ravenel, of Philadelphia, who delivered the address in Medicine. They were also fortunate in obtaining the assistance of our able and genial friend, Justice Riddell, of Toronto, who discussed the legal aspects of providing means for the care of confirmed inebriates.

We desire also to congratulate the Committee of Arrangements, under the Chairmanship of Dr. Herbert Hamilton, on the admirable character of the programme which they provided.

In addition to the work of these Committee's it was generally conceded that the association did a very graceful act in adding to its list of honourary members the names of Dr. Thomas T. Harrison, of Selkirk, and Dr. James R. Richardson, of Toronto. The next meeting will be held at Hamilton, under the presidency of Dr. Ingersoll Olmsted.—*The Canadian Practitioner.*

ONTARIO MEDICAL COUNCIL.

The Ontario Medical Council met in Kingston, July 2nd. This was the first occasion on which the meeting was held out of Toronto. There was a large attendance of representatives. Dr. W. H. Moorehouse, of London, the president, made his annual address.

He reviewed the council's work. He said a site for the new council building was to be decided upon, the board of examiners were competent and trustworthy and that the by-law covering the election of members needed revision. He insisted that with matters of medical education there should be no lowering of the standards and urged action to forestall any such attempt.

The following officers were elected: Dr. W. Spankie, president; Dr. P. Stewart Milton, vice-president; Dr. H. W. Aikins, treasurer; Dr. J. C. Patton, auditor; Dr. J. L. Bray, registrar.

Dr. J. L. Bray, graduated from Queen's Medical College in 1863. Two years ago Queen's University conferred upon him the degree of

LL.D., in recognition of long service to the medical profession. The new president, Dr. W. Spankie, Wolfe Island, is also a graduate of Queen's. He graduated as B.A., in 1862, and as M.D., in 1885. He has been inspector of Frontenac schools as well as a medical practitioner.

NOVA SCOTIA MEDICAL SOCIETY.

The Nova Scotia Medical Society held its fifty-fourth annual meeting at Windsor, July 3rd and 4th. Dr. J. B. Black, presided and there was a large enrolment of members. On Wednesday evening a public meeting was held at which Mayor Armstrong read an address of welcome from the citizens of Windsor.

Dr. Clark gave the presidential address. His subject was "Race Suicide with Suggestion of some Remedies." Dr. W. H. Hattie, superintendent of the Nova Scotia Hospital for the Insane presented a paper upon "The Cost of Degeneracy." Dr. Edward Archibald, of Montreal, read a paper upon "Cerebral Compression, its Physiological Basis and Therapeutic Indications."

The following officers were elected for the ensuing year:—President, Dr. J. Stewart, Halifax; first vice-president, Dr. W. Huntley Macdonald, Antigonish; second vice-president, Dr. W. G. Putnam, Yarmouth; secretary-treasurer, Dr. J. R. Corston, Halifax; executive council—Guysboro, Dr. G. E. Buckley; Shelburne, Dr. L. O. Fuller; Yarmouth, Dr. S. W. Williams; Digby, Dr. L. H. Morse; Antigonish, Dr. W. F. McKinnon; Inverness, Dr. C. H. Dickson; Richmond, Dr. C. P. Bissett.

The next meeting will be held in Halifax, as the society always holds its meetings there every third year, and the Maritime Medical Association will be in session in that city at the same time.

NEW BRUNSWICK MEDICAL ASSOCIATION.

The twenty-seventh annual meeting of the New Brunswick Medical Association was held in St. John, July 16th. The election of officers resulted as follows:—President, Dr. J. M. Deacon, Milltown; first vice-president, Dr. A. J. Ferguson, Dalhousie; secretary, Dr. R. J. Gay, St. John; corresponding secretary, Dr. C. T. Purdy, Moncton; treasurer, Dr. G. G. Mervin, St. John; trustees, Drs. A. F. Emery, W. Farwick and A. Pierce Crockett, St. John. It was decided that the next annual meeting be held in St. Stephen, on July 16, 1908. Dr. Skinner reported that there are now 273 registered physicians in New Brunswick. The population is 332,000. The financial statement of the treasurer, Dr.

Thomas Walker, showed a balance of $1,308.27 in February, 1906, and receipts from registrar $260, making a total of $1,568.27. The expenditures for the year were $559.79, leaving a balance of $1,008.48.

Dr. Clarke, superintendent of Toronto Asylum, and Dr. Ryan, superintendent of Rockwood Asylum, Kingston, left on July 5th for Europe to visit London, Munich, Vienna, Berlin and Paris, for the purpose of studying the treatment for the insane in vogue there and to report for the benefit of the Ontario asylums.

Dr. F. McKenty, lately house surgeon in the Royal Victoria Hospital, and Dr. R. D. Forbes, formerly of the Montreal General Hospital, have recently received the degree of F.R.C.S. (Eng.). We offer them our best congratulations: we understand that Dr. McKenty passed the required examinations in an almost unprecedentedly short space of time.

Dr. Ackland W. H. Oronhyatekha, only son of the late Oronhyatekha, Supreme Chief Ranger of Independent Order of Foresters, died suddenly at his residence, the Pines, near Deseronto, on July 7th. Death was due to heart disease.

Dr. S. A. King, of Kingsville, Ont., died on July 8th, in his 63rd year. He had retired from the practice of medicine for some years, and was interested in many large financial enterprises. A graduate of Victoria University, he practiced at Kingsville for twenty years.

Dr. Joseph W. Lesslie, of Toronto, died of apolexy on July 17th. He was surgeon of the Queen's Own Rifles during the North-West Rebellion, and was in his 54th year; he was a graduate of Toronto University.

Dr. Bertrand H. Keating, a graduate of London Medical College and McGill University, died in Los Angeles, California.

Dr. John S. Benson, of Chatham, N.B., died on June 22nd, in his 69th year. He was a graduate of Guy's Hospital in 1861.

Toronto had sixteen cases of small-pox in the last month. The disease began with children, two of whom were unvaccinated.

Retrospect of Current Literature.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

HENRY HEAD, M.D., F.R.S., and JAMES SHIRREN, F.R.C.S. "The Consequences of Injury to the Peripheral Nerves in Man." *Brain*, November, 1905, p. 116.

HENRY HEAD, F.R.S., W. H. R. RIVERS, M.D., and JAMES SHIRREN, F.R.C.S. "The Afferent Nervous System from a New Aspect." *Brain*, November, 1905, p. 99.

HENRY HEAD, F.R.S., and THEODORE THOMPSON, M.D. "The Grouping of Afferent Impulses within the Spinal Cord." *Brain*, 1906, p. 537.

In this series of papers the authors, inspired by Head, have undertaken a reconsideration of the sensory system in man, commencing with the peripheral nerves. Their results are based on the study not only of numerous clinical cases, but on the personal experience derived from the experimental section of the radial and external cutaneous nerves in one of their number (Head). In the limited space at my command, only a very superficial idea can be given of this epoch-making work. Those interested are especially recommended to read the methods employed by the authors. They have shown that what was formerly looked upon as simply diminished sensibility produced by the division of a nerve is really a condition in which some kinds of sensibility are lost, and others retained. Thus, Head found after division of these cutaneous nerves, that while he could not appreciate light touch with cotton wool or appreciate when touched with two points of a compass, even when widely separated—nor temperature between 22° C. and 40° C., painful stimuli, as a prick of a pin, were even more unpleasant than normal, although not localized accurately. Extremes of temperature also could be discriminated, as could pressure and any movements of the parts; indeed excessive pressure or injury to the joints caused pain. He therefore has divided the sensory mechanism in the peripheral nerves into three systems: (1) Deep Sensibility, (2) Epicritic Sensibility, and (3) Protopathic Sensibility.

Epicritic Sensibility consists in, 1. the recognition of light touch; 2, the ability to localize cutaneous sensory stimuli; 3, discrimination of compass points; 4, appreciation of differences in size: 5, discrimination of intermediate (25° C. to 40° C.) degrees of temperature.

Protopathic Sensibility consists in, 1, appreciation of painful cutaneous stimuli, and 2, sensation of heat above 40° C., and of cold below 20° C

If deprived of all cutaneous afferent paths the part is still endowed with *Deep Sensibility*, consisting in the, 1, recognition of pressure and appreciation of any increase in the amount of pressure; 2, increase of pressure produces pain and the point of application of pressure can be recognized; 3, recognition and appreciation of the extent and direction of muscular movement.

In the spinal cord, however a redistribution of the sensory paths takes place.

In regard to pain, if the lesion affects these paths in the cord sensibility to pain is abolished as a rule—to all forms of painful stimuli.

Sensations of heat and cold undergo an even more complete redistribution. Destruction of the epicritic or the protopathic fibres interferes with the afferent impulses, both for heat and cold. If epicritic sensibility is abolished, the patient cannot discriminate intermediate degrees of heat and cold, but remains sensitive to the more extreme temperature stimuli. After a peripheral nerve has been divided, the protopathic system recovers first. This recovery endows the part with sensibility to cold below 20° C. and to heat above 40° C. With recovery of the peripheral nerve after injury, we get return of sensibility to both forms of thermal stimuli.

When the lesion is in the spinal cord, 1, sensibility to heat may be abolished without coincident disturbance of that to cold and *vice versa*. 2, When sensibility to heat is distributed in consequence of an intramedullary lesion, the patient no longer appreciates any thermal stimulus between 30° C. and 60° C. That is to say, insensibility is absolute to both intermediate and extreme degrees; 3, Insensibility to heat and cold may be absolute and yet the patient may be able to recognize the lightest tactile stimulation and to discriminate the two points of a compass.

When sensibility to touch is abolished on the opposite half of the body in consequence of an intramedullary lesion, all forms of tactile stimuli will be found to be affected. The peripheral afferent impulses for touch and pressure arriving by way of the epicritic and deep systems become combined in the spinal cord, so that the lightest perceptible touch produces a minimal tactile impulse.

With regard to the sense of position of a limb. Every other form of sensibility may be abolished in a part, in consequence of an intramedullary lesion and yet the appreciation of passive movement and position remain undisturbed or conversely the patient may be unable to recognize

the grossest passive movements and be entirely unaware of the position of his legs, although they are sensitive to all tactile and pressure stimuli.

Thirdly, the sense of position may be disturbed in one leg and lose every other form of sensation found in the leg of the opposite side.

In the spinal cord the impulses which underlie the power of discriminating two points are separated from that of tactile sensibility. Having passed up in the epicritic system, they become dissociated in the spinal cord from the remaining forms of epicritic sensibility. Within the spinal cord they pass on in close association with the impulses which underlie the recognition of passive movement and position of the limbs—impulses which have reached the cord by means of the fibres subserving deep sensibility.

The interrelation of afferent impulses in their passage up the spinal cord—1, Afferent impulses for pain, heat and cold cross the spinal cord to pass up the opposite side; 2, the remote loss of sensation may affect to a varying degree the impulses for the three forms of sensibility; 3, the borders of this remote loss of sensation on the opposite side of the body to the intramedullary lesion usually merge gradually into parts of normal sensibility. But occasionally they correspond to the borders of intramedullary segments.

Disturbances of touch and pressure, when they do occur in cases of Brown-Séquard paralysis, are found on the opposite side of the body to the motor disturbance.

The impulses of light touch, deep touch and the tactile element of pressure are lost together.

The sense of passive position and movement is abolished on the same side as the motor disturbance, provided that the loss of motion is entirely unilateral and no single form of sensation is distributed on both halves of the body. The loss of the sense of passive position and movement is independent of the tactile impulses and of those which underlie the power of cutaneous localization, but is closely associated with inability to discriminate two compass points.

If all forms of tactile sensibility are perfect in Brown-Séquard's paralysis, 1, the power of discriminating two points will be found to be diminished over the side of the motor disturbance; 2, there is a close relationship between loss of the sense of passive position and movement and the power of discriminating two points—loss of the one is usually associated with grave disturbance of the other.

Local Effects of an Intramedullary Lesion.

Every disturbance of cutaneous sensibility due to the local effect of disease of the spinal cord lies on the same side as the muscular wasting and loss of motor power, that is, on the side of the maximum lesion.

This forms a fundamental difference between the local and remote effects of intramedullary disease. This disturbance of cutaneous sensibility at the level of a pure intramedullary lesion of the spinal cord follows the central rather than the peripheral type, although it is situated in those parts which lie on the same side as the disease.

The Passage through the Spinal Cord of Afferent Impulses Concerned with Localization.

In the peripheral nerves the power of recognizing passive movement and position is closely associated with the integrity of those afferent fibres which run mainly with the muscular nerves. In this same path travel those impulses which underlie the recognition of deep touch as far as all subcutaneous structures are concerned. But in intramedullary lesions the sense of passive position and movement may be destroyed, although sensibility to deep touch remains perfect, and the converse may occur.

Secondly, any loss of the sense of passive position and movement will be found on the same side of the body as the disturbance of motion and reflexes. Further, the power of discriminating two points can be diminished over a limb completely sensitive to all cutaneous stimuli. If, as a consequence of the remote effects of an intramedullary lesion the compass test shows a diminution of sensibility, whilst touch is perfectly appreciated, the part so affected will lie on the same side as the disturbance of motion. Whenever tactile sensibility is abolished in consequence of an intramedullary lesion this loss of sensation will be found on the side opposed to the loss of motion, over the limb insensitive also to painful and thermal stimuli. Again, the power of localization of a tactile stimulus may remain good over parts where the sense of passive position and movement is entirely lost.

Impulses induced by passive movement and the compass test, unlike any other form of sensory stimulus pass up the same side of the cord until they reach the medulla oblongata and pons varolii. In the cord they have not reached the second level of the sensory nervous system; for the most distinctive feature of the impulses at the secondary sensory level is the fact that the remote results caused by interference with them is manifested on the opposite side of the body.

It is probable therefore that impulses subserving tactile discrimination—that is, the recognition of two points (compass test)—and those underlying the appreciation of passive position and movement, pass up in the posterior columns. Collaterals conveying now sensory afferent impulses are probably given off to afferent cerebellar tracts.

All sensory impulses which have crossed the cord show signs of a recombination. Thus, all tactile elements, by whatever peripheral paths

they may have reached the cord, are united into a single group. In the same way all painful and thermal sensations become recombined in the spinal cord. This recombination must occur on the same side of the cord as that by which the sensory impulses entered, because the loss of sensation at the level of a lesion in the cord agrees in character with that remote loss on the side opposed to the lesion where the sensory impulses had been interruptetd after they crossed the spinal cord.

The rapidity with which sensory impulses cross to the opposite side varies greatly. Some, such as those associated with pain, heat and cold, seem to have crossed completely in the space of five or six segments. With tactile impulses the crossing is less rapid.

It is probable that the fibres of the deep system carrying impulses produced by painful pressure from the same part of the body do not enter by the same posterior roots as those carrying impulses produced by cutaneous painful stimuli. Thus, more than one segment of the cord is required before all the painful impulses from any one part of the body can be gathered together and recombined.

The local effects of an intramedullary lesion are produced by interference with the paths of the secondary level before they have crossed the cord, whereas the remote effects are due to interruption of these tracts as they pass up towards the third level after crossing the cord.

The mechanisms of the secondary or intramedullary level are concerned with the separation of new sensory from sensory afferent impulses and with the recombination and transmutation of sensory impulses into specific groups.

COLIN K. RUSSEL.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

BLACKER, G. F., M.D. "Heart Disease in Relation to Pregnancy and Labour." *British Medical Journal,* May 25, 1907.

Dr. Blacker chose this subject to discuss before the University College Hospital, because of its importance, and of its not infrequent occurrence, and also because, he thinks, the teaching in some of the current textbooks is erroneous in that it exaggerates the danger and the mortality arising from this complication of labour. The effect of pregnancy on the heart has not altogether been decided. He reviews the various theories and shows the fallacy in each. He points out that the view of increased work thrown upon the heart during pregnancy although probable is not proved. The view that strain is thrown upon the right

side of the heart as well as the left shows that there cannot be complete proof of the hypertrophy of the left ventricle during pregnancy.

The view that dilatation and weakening of the right heart occurs in pregnancy is supported by the fact that not infrequently this organ quite early in pregnancy often fails in otherwise healthy women. Tracings of the apex beat demonstrate it to be often due to over distended right ventricle, and not to a hypertrophied left ventricle. The constant presence of overfulness of the jugular veins in the neck the irregularity of the pulse, the occurrence of heart failure not infrequently during pregnancy, and, the fact that dilatation of the heart cavities, and not hypertrophy of the left ventricle, have been found in a large number of cases post mortem, tend to confirm this view. He sums up this whole argument as follows: it is probable in some cases that hypertrophy of the heart is the chief change which occurs, while in some there is hypertrophy of the left ventricle and dilatation of the right side of the heart. It also appears certain that in some healthy women neither dilatation nor hypertrophy of the heart occurs during pregnancy.

He thinks on the whole, the evidence is in favour of the view that blood pressure is raised above the normal during pregnancy, and that this rise begins in the second half of pregnancy and reaches its maximum at term. There is immediate fall below the normal immediately after delivery, a fact of considerable importance.

The pregnant woman, in view of the increased demand made upon her heart by her condition, is on the border line of break-down. The majority of cases of valvular disease of the heart complicated by pregnancy do perfectly well. There can be no doubt but that pregnancy constitutes an increased danger to a woman who has a severe valvular lesion of the heart. He has collected from literature 131 cases of severe heart disease occuring in 55,000 cases of labour, the proportion of about 1 case in about 400 cases of labour.

With regard to the special dangers of heart disease in cases of pregnancy these are failure of compensation and the occurrence of degenerative changes in the heart muscle. The symptoms of these cases are very much the same as of their occurrence at any other time.

Death from cardiac failure during labour is very uncommon but the author records the occurrence of such a case in his practice.

After delivery, the heart may give out in three ways. Immediately after birth of the child, cardiac failure may occur, as a result of over distension of the right side of the heart, with resulting paralysis, or by the blood accumulating in the large abdominal veins in consequence of the rapid fall of blood pressure. The third way in which cardiac failure

occurs is some days after delivery, from degenerative changes in the heart muscle and from a failure on the part of diseased heart to recover from the strain of labour.

He records a case of cardiac failure after delivery, in consequence probably of blood accumulating in the abdominal veins. The patient, a multipara 38 years of age, had had a severe attack of influenza with some cardiac weakness some weeks before her confinement and had only recovered a few days before her delivery. Labour was precipitate. Immediately after delivery of the child the patient became collapsed. There was no hæmorrhage external or internal and the uterus contracted well. In spite of every means to combat the condition, death took place 2½ hours later. He thinks that death in this case is due to the failure of the heart weakened by the recent attack of influenza, and so brought about by a sudden fall in the blood pressure as a result of the precipitate labour, and the consequent accumulation of the blood in the large veins in the abdomen.

There is another possible sequel to cardiac failure following delivery, and that is a tendency to the retention in the body of various toxic materials as a result of the enfeebled circulation, and a failure of the excretory function of the kidneys and the liver. These substances may lead to degenerative changes in the heart muscle.

He considers the average death rate of cases of valvular disease complicating pregnancy is about 12 per cent. The mortality naturally depends on the variety of the heart diseases to some extent, but mainly on the condition of the heart muscle. If the valvular lesion is well compensated, the heart muscle healthy, and the blood pressure normal, the danger to the patient is very small indeed. If the heart muscle degenerates or if there is insufficient compensation, the danger is great.

With regard to treatment the author lays stress upon rest in bed and general heart tonics. He is of the opinion that there are some cases in which the induction of abortion or premature labour is better treatment than is generally supposed and that in the majority of cases if such interference is necessary its adoption will improve the patient's condition and not make it worse.

A case is recorded of a patient suffering from edema of the lungs, cough, and hæmoptysis. In spite of treatment the edema did not clear up so that at 5 months abortion was induced under anæsthesia. Treatment by rest in bed and medicine if not followed by marked improvement should be followed by induction of abortion or premature labour. With regard to the conduct of labour in these cases he says that if there are signs after the delivery of the child that the right side of the heart is

very distended, one ought to encourage post partum haemorrhage or to actually bleed the patient. Where the patient is pallid and the pulse very small with no signs of over-distension on the right side, intra-abdominal pressure should be maintained by the use of a sand bag or a tight bandage, and appropriate means taken to stimulate the heart's action.

AUDEBERT AND FOURNIER. "Traitement des Convulsions Eclamtiques par la Ponction Lombaire." *Annales de Gyn. et d'Obstet. June*, 1907.

This paper is based on two cases which are reported in detail. Reference is made to the edema of the brain and other intracranial conditions associated with eclampsia and in the fatal case recorded by the authors they not marked dilation of the intracranial sinuses. He refers to the work of Helme, Kronig, Thies, Henkel and Mirto.

In the first of the cases recorded the condition of eclampsia was well marked. The treatment was entirely expectant and lumbar puncture was resorted to on two occasions. The fluid escaped in drops, almost in a constant stream. It was a distinct rose colour and 12 cc. were drawn. The examination of the liquid disclosed nothing abnormal with the exception of an abundance of red cells. The convulsions were mitigated somewhat after the puncture. The recovery was slow and complicated by a condition of pyelo-nephritis.

The second case, also a primapara, developed eclampsia in the course of labour. Following lumbar puncture the fluid escaped by drops, 10 to 12 c.c. of absolutely clear liquid were withdrawn containing neither white nor red cells. The patient gradually sank and died. The usual changes associated with eclampsia were found post-mortem.

The authors have collected 46 cases including their own, from literature. They review the results obtained showing the mortality to be 35 per cent following lumbar puncture.

They state that lumbar puncture is not a treatment for eclampsia but is directed against the convulsions. Eclampsia, they admitted, is a toxic infection. The object of the treatment is simply to diminish the pressure in the spinal cavity and to reduce the pressure in the nervous centres. They consider that the treatment produces an improvement by diminishing the number of convulsions and curtailing the stage of coma and is a symptomatic treatment not a causal one.

Lumbar puncture is indicated when the convulsions recur frequently, when coma persists and when there is an oliguria or anuria. They think it ought to be employed in all grave cases and that the results justify its employment.

PIERI, FELIX. "Decortication of the Kidney and Nephrotomy in the Treatment of Grave Forms of Eclampsia." "De la Decortication du Rein et de la Nephrotomie." *Anna. Gyn. d'Obstet.* May, 1907.

Five cases have been collected from literature and one personal experience is given. The author discusses the pathological anatomy of the eclamptic kidney and the mode of action and the decortication and nephrotomy. The technique of operation is discussed fully and the paper closes with a discussion of the indications and the conclusions which may be drawn from the study of the cases at present reported.

The following are his conclusions:—Nephritis of eclamptic origin occurs but not alone. Based on mechanical and physio-pathologic deductions one is compelled to admit that there occur in the kidney of the eclamptic associated lesions of varying degree. (a) Epithelial lesions more or less marked; these may be superficial but for an indefinite period, and are then capable of restitution ad integrum, if not permitted to increase and become definite: (b) congestive lesions, of intense degree which play by far the largest role in the pathogenesis of eclamptic anuria. It is in this condition that surgical treatment is all powerful.

The mode of action of surgical procedure in eclampsia is of threefold nature; by the decongestion of the kidney which it produces, by the elimination of the epithelial debris, etc., which obstructed the canaliculi, and by the modifications in the vaso-motor innervation which it brings about, the operation favours the arrest of the inflammatory processes in the kidney and the re-establishment of the flow of urine.

He thinks that the result from successes in six cases justifies surgical intervention in these grave forms of eclampsia.

The operation should be bilateral, on one side both operations, and on the other decortication alone. In considering the different eclampsia symptoms it is principally the oliguria early and progressive, the decrease in urea and extractine matters, and the presence in the urine of kidney detritus, which indicate the necessity of surgical intervention. It is in this pre-anuric period in which the operation should be undertaken, if successful results are to be obtained.

In cases of confirmed anuria the operation is the ultimate resort but while improvement may occur, satisfactory results can scarcely be expected in view of the marked general intoxication.

BULLARD, W. N. "Obstetric Paralysis." *Am. Jour. of the Med. Sci.* July, 1907.

Obstetric paralysis was first brought to the notice of the medical profession by Duchenne in 1872.

Three forms are to be met with: (1) the upper-arm type; (2) the lower-arm type; (3) the two preceding combined. The most common is the upper arm type which corresponds in a general way pathologically to Erb's paralysis in the adult. It is with this form that this paper deals.

After reviewing various theories as to the causation of the condition Bullard states that it has been conclusively proved that the injury is due to the stretching of the fifth and sixth cervical nerves in the neck. These nerves may be simply stretched without loss of continuity or they may be ravelled out, some fibres being torn apart and some still holding, or they may be wholly torn asunder. The exact process by which the nerves are damaged is not settled but the injury is probably due to traction powerfully exerted and favourably by the firm resistance or fulcrum against which the pull is made. Traction on the head in the axis of the body is less injurious than when it is made obliquely. Over rotation of the head may also produce the injury. Fixation of the shoulder or shoulders in head presentations; and resistance of the head in breech presentations favour development of the injury. Asphyxia by bringing about the relaxation of the muscles and thus removing their resistance, favours the development of the injury, as the nerves no longer having the support of the muscles, are more easily torn.

The author records 43 cases in which the report of the attending physician at the time of labour was obtainable, and 135 cases in which good histories were obtained from the patients themselves, making a total of 178 cases.

In the first series, delivery was difficult in 15 of them; forceps were used in 28 cases, a rather high proportion. The head presented in 40 cases and the breech in three. In 18 cases the shoulders offered resistance to extraction, in many of the cases there was no resistance encountered.

In the second series of 135 cases, labour was difficult in 79, the head presented in 55, and the breech in 3. Forceps (including 3 on the after-coming head) were used 93 times. The right upper extremity was affected in 92 cases and in the left 72, both the upper limbs in 2 cases and in 11 cases the arm affected is not reported.

Speaking of the clinical conditions it is stated that in the early stages the upper extremity hangs limp, extended, and rotated internally. In typical cases the grasp is impaired and the wrist is not affected. Supination of the fore-arm beyond the median line is impeded; flexion of the fore-arm is impaired though extension is not affected, the arm cannot

be lifted at the shoulder nor can it be rotated outward. The author then discussed in detail the action of the various muscles involved; these are, the deltoid, the biceps, the brachialis anticus, the supinator longue, the spinatus and supraspinatus and the serratus magnus Other muscles in the neighbourhood are sometimes involved. As the paralysis continues, atrophy of the muscles takes place. This atrophy is not confined solely to the muscles but the bones may be affected and the whole limb may be smaller than the corresponding one. The atrophy and paralysis of the arm muscles is less complete than in the old cases of anterior poliomyelitis.

Accompanying the article are several radiograms showing the condition of the bones and joints in such cases.

Society Proceedings.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The sixteenth regular meeting of the Society was held Friday, May 17th, Dr. F. G. Finley, President, in the Chair.

PATHOLOGICAL SPECIMEN: AORTAL AND MITRAL STENOSIS.

P. G. White, M.D.—The patient from whom this specimen was obtained was a woman aged 38, who had suffered from heart symptoms for about seven years. She came to the Montreal General Hospital with the typical signs of loss of compensation, following childbirth. No history of rheumatism. At autopsy the heart was found to be greatly enlarged, weighing some 530 grammes. The left auricle was extremely dilated, being two to three times its normal size. In the auricular appendage was a large well organized thrombus. The segments of the mitral valve are thickened and fused together, forming a typical stenosis with a mere button-hole-like opening. In the aortic valve the cusps are also greatly thickened and fused together, leaving an extremely small opening for the blood to pass through. Around this opening on the endocardium are seen small recent vegetations, evidence of an acute endocarditis grafted on a chronic. The myocardium and the left ventricle are greatly hypertrophied but show no fibrous change.

J. C. Cameron, M.D.—I should like to say a few words respecting the clinical aspects of this case. We have had a series of these cases of mitral stenosis and other heart troubles at the hospital and this one is particularly interesting because of the good effects obtained from the administration of digitalis. She was kept on this drug, not con-

tinuously, but for two or three days at a time, then for an interval without any. In this way it was possible not only to maintain the ordinary circulation, but also to obtain a fair degree of compensation. I may say that by some digitalis has been considered to be harmful in these heart cases, and in a sense contraindicated, but this patient passed through her puerperium quite safely and well. Our conclusion with respect to these heart cases is that no matter what the lesion may happen to be, whether mitral stenosis, pure or complicated, the whole outcome of the case seems to hinge upon the degree of compensation which can be secured. Although textbooks state that labour should be induced in mitral stenosis, I do not think that this holds for all or even for most cases; we have had quite a series where compensation has been built up and the patient has passed through the labour and puerperium without any ill result whatever.

SOME CLINICAL ASPECTS OF THE DIAGNOSIS AND TREATMENT OF PUERPERAL INFECTION.

H. M. Little, M.D., read the paper of the evening.

A. Lapthorn Smith, M.D.—This paper is of much value and cannot fail to interest every practitioner almost without exception. The bright and clear manner in which it has been put before the Society is appreciated, especially by myself, as I read a paper on this subject before the American Gynæcological Society in 1902. A peculiar feature noted is that puerperal fever is much more frequent in the month of January and less frequent in August. This may be easily explained by the want of proper ventilation in the severe winter months. With regard to temperature, I may say that I have been called to cases where the doctor in charge has been in great distress because he thought he had infected a case where, on careful examination, it has turned out to be a case of typhoid with the typical rose spots on the abdomen. Besides typhoid, appendicitis must not be forgotten as a complication. Again, I have found on opening the abdomen, the pelvis a whole mass of adhesions from pus tubes. I would recommend every one to take the temperature of a confinement case when they come into the house instead of waiting until the patient is delivered. This frequent taking of the temperature would be found most useful. Then there is phthisis, acute signs of which often set in at the end of pregnancy. Sir William Hingston called my attention some twenty-five years ago to the fact that there were never any cases of puerperal fever among the Indians for the reason that they did not lie on their backs for weeks after a confinement, but went about their work in a day or two, the drainage thus

obtained being their salvation. One case, to which I was called in the country, with a high temperature, I was about to curette, but on simply drawing down the cervix with a bullet forceps, four or five ounces of bloody pus spurted out and, as lack of drainage was evidently the whole cause of the trouble, I merely washed out and put in a drain, and she promptly recovered without other treatment. Remembering this remark of Sir William Hingston's many years ago I abolished the bed pan from my obstetric practice ever since, and have insisted upon every patient sitting on the chamber in the bed so as to allow discharges to come away by gravity. I agree with Dr. Little about bichloride of mercury. I have seen several cases of undoubted poisoning from it in my own hands, and one fatal one was sent in to the Western Hospital from a practitioner in the city. I now use nothing but permanganate of potash and find it both harmless and effective. I pointed out in my paper fifteen years ago that there were altogether too many examinations made in the majority of cases, and that their number should be brought down. I am glad to see that Dr. Little advocates this also. It would considerably reduce the number of infections, although, on the other hand, I must say that not all infections are caused by either the doctor or nurse. Many of these infected cases are poor women whose husbands are engaged in dirty occupations such as picking rags infected with every kind of poison, and who have no idea of sanitary precautions after handling the penis. In some cases of puerperal fever where I have done an exploratory laparotomy I have found nothing wrong with the appendix or tubes, but there was seen a chain of lymphatic abscesses full of pus, due, I believe, to infected lacerations of the perineum. Vaginal hysterectomy would give such cases the best chance of recovery, but I believe they could all be prevented by immediate repair of the tears, especially by placing the sutures in position before the tears take place, so that on tying the sutures after the delivery of the placenta the parts will be absolutely and accurately closed.

J. C. Cameron, M.D.—With reference to Dr. Smith's remarks about fever which is not infective in character I think the safer stand for the profession to take is to assume the cause to be an infective condition during the puerperal period until we are sure that it is something else. If we wait to prove the infective condition clinically, we may find it too late to be of any service to the patient. This paper is an extremely timely one and of much value, for it is a resume of wide experience and of the conclusions drawn therefrom. The more we see of cases of puerperal fever the more are we convinced that infection

is from without — infection brought into the organism. If this proposition be correct, it follows that the first and most important part of our duty in the treatment of puerperal women is prophylactic and to fortify the system so that it may be able to resist and throw off such infection should it gain entrance. Upon this we are all practically agreed, but when it comes to putting our theories into practice I fear that our ideas differ very widely indeed. We say that prophylaxis is a good thing to strive for, but how are we to develop a technique to this end? Some find careful hand disinfection, rubber gloves, the antiseptic douche, etc., the thing to be relied upon. Indeed, this douche is a sort of universal panacea with some and is given for all sorts of things. I do not believe there is such a thing as an antiseptic douche, that is to say, a douche which contains some chemical ingredient which will destroy all pathogenic germs present in the passages. If we used a douche strong enough for that, it would poison the patient; moreover, it lies in contact with the uterine canal for such a short space of time that its effect is practically to be neglected. The action of the douche is mechanical, to flush out and wash away debris, but not antiseptic to destroy germs. The part of this paper which seems to me of the utmost importance is the description of the means we adopt to obtain prophylaxis, that is to say, the means by which we cleanse the parts and avoid the possibility of conveying infection. The most important of these preventive measures are the emptying of the bowel and the making of the vulva perfectly sterile and clean. If the vulva is foul and contains infectious matter you can very easily carry such matters into the vagina and into the uterus. Another point brought up is the use of ergot. The careful watching of the patient throughout the puerperal period, the careful watching of involution and the use of ergot until involution is complete or at least until the uterus has become a pelvic organ are necessary. These are all matters of prophylaxis and these are the things upon which we should concentrate attention and I am sure that then our results would be much better. The question of the douche is a difficult one. In preparing the hot intrauterine sublimate douche how often is sterile hot water used cooled down to the desired temperature with tap water. How can such a douche be sterile? In Philadelphia, some years ago, in some fatal cases of tetanus following an intrauterine douche, an examination of the tap water shewed the presence of tetanus bacilli. The chemical germicide did not kill the tetanus bacilli, how could it be expected to destroy pathogenic organisms in the uterus? Only sterile water, hot and cold, should be used in preparing a douche.

A CASE OF CARDIAC ARHYTHMIA.

Ridley MacKenzie, M.D. and W. S. Morrow, M.D.

Dr. Morrow made some remarks on the physiological aspects of the case. He emphasized the fact that the pnuemogastric nerve was essentially inhibitory to the respiratory centre and that when irritated and stimulated it brought about marked shallowing of the breathing. He said that this fact has not yet been fully recognized in physiological text books with the exception of that by Howell. The best account is to be found in two papers by Lewandowski in Du Bois Raymond's Archives for 1896.

Ridley MacKenzie, M.D.—I recognized that this case was more of physiological interest than clinical though I was far from satisfied about the condition. However, after Dr. Morrow had made his observations I could understand the condition better.

TRAUMATIC ASPHYXIA.

C. K. P. Henry, M.D. read the report of this case.

C. K. P. Henry, M.D.—The patient's respirations ranged from 24 to 26 and they were of a shallow character. Another case is now in the wards who also suffered from traumatic asphyxia and his condition was more favourable in its outcome though he suffered from a fractured rib for which he is still under treatment. Cases have been reported by Beach and other observers. A point noted in all cases is the increased rate of the pulse and this same shallow respiration.

D. J. Evans, M.D.—Dr. Little has summed up the subject in a very clear and comprehensive way and I agree with almost everything he has said. The points he has made in regard to the diagnosis in the streptococcus forms of infection (which, after all, is the infection chiefly to be feared) are of great importance. I cordially agree with his views in regard to the treatment of these infectious cases. One of the most important points is leaving the patient alone. Constant manipulation of the parts resulting from efforts at douching, etc., can only do harm. Good involution is to be brought about if possible and in this connection I am a great believer in the value of ergot and quinine. Beyond securing good drainage and supporting the general strength of the patient very little can be done, until there is special indication for surgical interference as a result of the infection having become localized. The condition of the bladder is particularly important as the over-filling of this viscus tends to interfere with proper drainage.

I am under the impression that the broad abdominal binder is not infrequently the cause of defective drainage by crowding the body of the uterus down into the pelvis and so obstructing the ouflet of the cervix. In all cases it should be dispensed with a few hours after delivery.

The present tendency to look upon all elevations of the temperature in the early period of the puerperium as due solely to intra-uterine infection, and as such to call for immediate and energetic intra-uterine irrigation and curretage, is to be greatly deprecated. Such treatment often transforms what is a mild infection into a very serious condition. Again such elevations of temperature may be due to some transient intra-uterine condition. Again, I must express my appreciaiton of the conservative tone in the excellent paper we have listened to this evening.

J. G. Adami, M.D.—Referring to Dr. Smith's reference to Sir William Hingston's observation upon the immunity of Indian squaws to puerperal fever it may be worth noting that this same immunity was noted in Lancashire "Mill hands," and was ascribed to the same cause as long ago as 1772 by Charles White in his "Management of lying-in and pregnant women," a work that had great vogue in its day, going through several editions in England, being reprinted at Worcester, Mass., and translated into French and German. White noted that these women got up immediately after labour and went about their work, and advised and carried out the practice of having his patient forthwith sit up in bed for meals and get about in the course of two or three days. By this means, he pointed out the womb became drained of stagnating lochia and infection was prevented. Nay more, some seventy years before Semmelweiss, he showed, that puerperal fever was not a specific, but a filth disease, akin to jail and hospital fevers, and pointed out the rational means to prevent the development of the conditions.

The seventeenth regular meeting of the Society was held Friday, June 7th, 1907, Dr. F. R. England in the chair.

W. G. Turner, M.D., showed living cases.

I.—SUBDELTOID OSTEOMA.

Five years ago the patient fell while getting off a street car, falling backwards directly on the apex of left shoulder. There was total disability of the left arm for about two months. Then partial disability to the extent of inability to raise hand to head; in abduction, marked weakness, some pain and at intervals marked exacerbations of pain which caused complete disability. Three weeks ago, when I first saw the patient, he could not abduct his arm more than to an angle of 45°, also marked limitation in extension and external rotation. There was marked tenderness and pain referred to just posterior to the long head of the biceps. External rotation caused marked pain. I judged the cause of the disability to be due to some lesion just posterior to the

bicipital groove, having in mind a case somewhat similar where the surgeon on cutting down discovered an osteochondromatous enlargement of the humerus at that site. But the radiographs show quite another condition. Just below the acromion is a distinct shadow, probably due to bone, with quite a clear space between it and the regular contour of the head of the humerus. The question naturally arises as to the cause of this deposit of bone at this site and seemingly free from the humerus. Is it due to bone salts being deposited in a hæmatoma or is it due to a strip of periosteum being partially stripped off? The disability appears to be due to this bony mass, either in the capsule or in the joint, becoming impacted against the acromion in abducting the arm. Naturally there has been some arthritis associated, and one would expect adhesions in such a joint. There is no mass palpable, only the general thickening over the joint and marked atrophy of the deltoid.

II.—DOUBLE CLUB HAND AND DOUBLE CLUB FOOT.

This case was referred to me by Dr. Garrow. Such symmetrical deformities of the four extremities are comparatively rare. Following the method of Lorenz "modellirende redressement"—the right foot and left hand were completely corrected, and the left foot partially corrected. the deformity of the feet was marked equino-varus position; of the hands the right angled flexor deformity—no radial or ulnar deviation. The flexor tendons were markedly shortened; those of wrist, fingers and thumb. The correction of the hand was very gradual taking about half an hour and was then splinted; the feet being at once put up in plaster after correction.

C. B. Keenan, M.D.—These cases present certain difficulties in prognosis and in treatment. Since at the first examination the usual signs of fracture are absent a good prognosis is given which is not justified in the result. The skiagraph alone can show the lesion in these cases. At times there is a partial fracture of the anatomical neck with impaction, again a crushing of the great tuberosity while at other times there is merely a tearing away of the periosteum. I judge the latter to be the lesion in the present case.

The treatment must be directed towards preventing limitation of movement which is almost wholly mechanical and due to the new bone formation (the callus) hindering the movements.

Whether to employ rest to prevent excessive callus formation or to use passive motion early to avoid its results is yet a debatable question.

F. R. England, M.D.—In correcting the club foot case I would like to ask if an anæsthetic was used and if any apparatus was applied or whether continued passive motion in the treatment is relied upon.

W. G. Turner, M.D.—With regard to the question of shoulder injuries of this nature I feel that the deposit of bone is not the total cause of the disability but that that is a partial fracture. This man fell heavily directed on his shoulder and just as we see the enlarged toe joint, also hallux rigidus, as a result of stubbing the toe, so I think that this condition is an arthritis along with this bony deposit. I am quite certain that the removal of that piece of bone is merely an element and there is no doubt that this joint is bound down by fibrous adhesions and I think along with some surgical interference early passive movement is indicated. I really believe that a great number of these so-called lesions after dislocation of the joint are the result of treatment or simply due to not carrying out passive motion early enough.

With regard to the congenital condition the ordinary thing to do is to correct as far as possible at one sitting. You begin with the toes tarso meta-tarsal, then mid-tarsal and finally to the ankle joint, then fixation which requires from 2 1-2 to 3 months after the correction. Proper fixation is quite as important as the manipulation itself. Great care should be taken in these cases as violent manipulation of any human tissue is apt to have disastrous results and may lead to mal-practice suits and the utmost precautions should be taken with your plaster casts.

AN ANALYSIS OF 500 CASES OF CONJUNCTIVITIS.

Hanford McKee, M.D.—Read the paper of the evening.

C. W. Duval, M.D.—Dr. McKee is certainly to be congratulated on his excellent paper. Many things he has pointed out are of the utmost importance to the practitioner, one in particular his reference to the micrococcus catarrhalis or the pseudogonococcus. This organism is a Gram-negative biscuit-shaped coccus which occurs outside of the cell and is very confusing in many cases of conjunctivitis and also in some chronic inflammations. In inflammations of the conjunctiva you are very apt to confuse it with the gonococcus. It has the same morphology and occurs within the pus cells so that in the ordinary routine examination of pus from a conjunctival sac in a suspected case of the gonococcus infection one may find this Gram-negative organism. When cultivated on suitable media it grows well, in fact on all the ordinary media, which, of course, the gonococcus does not. Quite a number of so-called cases of gonorrhœa of the eye are nothing more or less than this micrococcus catarrhalis. The same thing occurs in the urethral discharge and many of these cases may be called gonorrhœa which are really due to the organism which Dr. McKee has described. There is no question that this organism described is a new bacterium.

Dr. Lapthorn Smith, M.D., showed two pathological specimens of Ruptured Tubal Pregnancy. Both operations were successful. In the first case there were at least two quarts of blood in the abdomen. Another specimen was that of a fibro-cystic tumour of the uterus all on one side of the uterus and filling the left broad ligament. Another specimen was that of a hydrosalpinx resembling an ovarian cyst. Another was an appendix full of concretions. The patient had been sent in for removal of the right ovary and tube but as it is the generally accepted opinion that in patients suffering from long continued pain requiring the removal of the right ovary and tube that the appendix should also be removed it was looked for with the above result. Operators have frequently had to do a second operation a year later for removal of the appendix when this has not been done at the first operation so that it is better when the patients condition at the operation for removal of tubes and ovaries permits to remove the appendix and remove it if adhered at the same time.

The eighteenth regular meeting of the Society was held Friday, June 21st, Dr. F. G. Finley, President, in the Chair.

PERICHONDRITIS OF THE LARYNX FOLLOWING TYPHOID FEVER.

H. S. Birkett, M.D. and H. F. Muckleson, M.D., exhibited this case a report of which appears on page 547 of this number of the *Journal.*

J. G. Adami, M.D.—In seeking for a cause of these typhoid lesions at a distance it must be recalled that we are now recognizing more and more clearly that typhoid is not a local disease, with local and restricted growth, that is, of the specific microbes, but is a bacteriæmia with the bacteria becoming widely distributed through the agency of the blood. In a recent paper, Pratt quoting Drigalski (if I remember aright) called attention to the fact that cultures from the tongue in typhoid patients repeatedly give typhoid bacilli. If this be so what is remarkable is, not the occurrence, but the infrequency of typhoid lesions in the upper respiratory tract. Only recently at an autopsy at the Royal Victoria Hospital superficial laryngeal ulcers were encountered in a typhoid case.

P. G. White, M.D.—A case of typhoid fever: death before ulceration.

PATHOLOGICAL SPECIMENS—TUBERCULOSIS IN INFANTS.

Oskar Klotz, M.D.—The pathological specimens, which I wish to present this evening, are from three cases of tuberculosis in infants.

Case I. was an infant nine days old which died at the Maternity Hospital. The lesions found at autopsy, and which I will show you here, are marked " Hyperplasia of the Peyer's patches of the small intes-

tine, with very superficial and early ulceration." These ulcers are distributed lengthwise in the bowel wall, and, with the marked thickening of the borders, look much like those seen in typhoid fever. The mesenteric glands are enlarged and soft, but nowhere show macroscopic signs of caseation. The most marked change in the Peyer's patches is near the ileo-cæcal valve. Two minute ulcers also appear in the larynx on the vocal cords. Microscopic examination of the mesenteric glands show extensive caseation with typical tubercles and giant cells. Tubercle bacilli are stained in sections of mesenteric glands.

The interesting question in this case is, "When did the child become infected with tuberculosis." Considering that one must allow an incubation period of at least a week for the organisms to multiply in sufficient numbers to produce damage in the tissues, the time remaining in our case is too short to produce the amount of caseation noted in the mesenteric glands.

Case 2 was an infant of three months, which at autopsy showed a diffuse tuberculosis, affecting the lungs, thymus, spleen, liver, kidneys and the thoracic and abdominal glands. The specimens, as you will see, show the miliary character of the infection in the lungs, liver, kidney and spleen, while a caseous tuberculosis of the mesenteric and peribronchial glands is evident. In this case it will be noted that the disease is much more advanced in the glandular system. The intestinal tract shows no lesions.

Case 3 is that of child of three years, and shows a distribution of the tubercules similar to that of Case 2. You will note the miliary character of the disease in the lungs, liver, kidney, pleura and peritoneum. Caseous tuberculosis is seen to affect the peribronchial glands, and particularly the ones at the bifurcation of the trachea. The mesenteric glands likewise are in a state of caseation. A remarkable condition too is the tuberculous affection of one of the Fallopian tubes. This last, of course, is one of the secondary foci.

Cases 2 and 3 are the not unusual ones of tuberculosis in children, in which the glandular system shows the oldest foci, and it is this character of the disease which has of late been classed among the intestinal forms of the infection. You will note, however, how difficult it is, when the intestinal lesions are lacking, to give a positive opinion as to the site of invasion of the organism. The appearance of the mesenteric and thoracic glands lends little aid in giving this opinion, as the stage of the disease in these glands is about the same.

ACCIDENT POLICIES AND PROFESSIONAL RISKS.

A decision of the United States Court of Appeals at St. Louis may be of interest to physicians. A dentist while operating on a patient received some particles of septic matter in his eye that were coughed or spat out by the patient, and it was alleged blood poisoning occurred, disabling him for many weeks. He recovered judgment against the Fidelity and Casuality Company of New York in the Federal Court at Denver for $1,000, which judgment was reversed by the Appellate Court. This court held that a wound, within the meaning of an accident policy covering blood poisoning, must be an abrasion of the skin or membrane by which the germs are introduced into the blood. This may be a good legal technicality, but it will hardly receive medical approval. The ability of mucous membranes to absorb germs should be taken into account in any accident policy of this sort. The use of such a technicality on the part of an insurance company to evade its obligations is, we may reasonably assume, a violation of the implied understanding with which every physician takes out such a policy. All physicians are liable to serious risks, often unavoidable, and the question of determining the existence of an abrasion is sometimes a difficult one. It may exist without its subject either being aware of it or of being able to prove its existence afterward and the fact of blood poisoning through the skin is itself presumptive evidence of such lesion. On especially vulnerable parts like the eye the fact that an actual abrasion is not necessary for the production of serious results from the contact with toxins or germs should be recognized in every policy issued by an accident insurance company. It will be well for physicians to see that their accident policies cover all reasonable professional risks and take them out in companies that specifically recognize such liabilities.—*Jour. A. M. A.*, July 13, 1907.

Hauber reports 280 cases of spinal anæsthesia, without untoward result. It is especially the desirable form of anæsthetic in cardiac lesions, arterial disease and disease of the lungs, or after periods of great exhaustion, as in obstruction cases. It seems specially applicable to elderly persons. Rectal and vesical conditions are perhaps the most favourable, but hernia and leg amputations are also suitable.—*Arch. f. Klin. Chir.*

The Royal Victoria Hospital treated 226 cases of typhoid fever in 1906, with a mortality of 7.96 per cent; relapses occurred in 10.7 per cent; perforation occurred in 8 cases, six of which were operated upon, with four recoveries and two deaths.

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ON SOME PHASES OF A FAILING CIRCULATION.

BY

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Year by year the array of new facts, which modern research is constantly bringing to light, affords us new vantage points from which we are able to look back and see clearly the mistakes that have been made in the past. Owing to this enlarging view the physician finds that from time to time many of his concepts of disease have to be altered and with each alteration his therapeutics become more correct and more successful. Illustrations of this are to be found in every domain of medicine. This morning I desire to call your attention to one in the domain of the pathological physiology of the circulation, viz:—So-called heart failure—a misconception, as Janeway said in a recent address, hallowed by long usage, the alleged cause of more deaths than any other medical term. As popularly employed heart failure is merely a synonym of sudden death. It is a term made use of by many writers and teachers and yet it is a term often at variance with the facts as we now know them, and, therefore, misleading to us as therapeutists.

Sudden death at the height of an attack of lobar pneumonia was the illustration taken by Janeway and it is certainly a pertinent one. Permit me, however, to quote two out of several cases occuring in the wards of the Alexandra Hospital for Infectious Diseases, of which the details have been kindly given to me by Dr. Fyshe, the Medical Superintendent under whose care they were.

Case I.—M. N., female, aged 5 years, admitted on the second day of a well marked case of pharyngeal diphtheria. On admission a slight amount of laryngeal stenosis was present, but not enough to justify operative interference.

Read before the Maritime Medical Association at their meeting in St. John, N.B., July 18, 1907.

Her highest temperature was 101°F; her pulse varied from 128 to 148; the cardiac dulness was normal. There were no adventitious sounds within heart or lungs. The patient re-acted fairly well to antitoxin, the laryngeal stridor disappearing within twelve hours. On the afternoon of the third day of the disease, however, the patient suddenly collapsed, the pupils became widely dilated, the heart action very rapid, the sounds indistinct. The breathing remained regular until death took place about twenty minutes after the beginning of the collapse. Microscopic examination of the heart showed absolutely nothing pathological in that organ. The liver, the lungs, and the spleen were normal beyond a certain amount of injection.

Case II.—G. W., male aged 19 years, was admitted to the hospital on the third day of a very severe attack of scarlet fever. His temperature while in the hospital varied from 103° to 105° F, his pulse from 140 to a rate uncountable. The notes on admission stated that he was a well nourished muscular adult with anxious facial expression; his pupils were equal and active; his conjunctivae much injected; the lips abnormally pale. A most intense dusky red rash covered the body. The breath sounds throughout both lungs were normal but the respiration was of a sighing character. The pulse was rapid, of small volume and low tension, and very shallow. Cardiac dulness was normal in extent, but the heart sounds were feeble. No adventitious sounds were present; he responded feebly to a normal saline injection and collapsed a few hours afterwards, during the administration of a second. The autopsy findings as to the cause of death were most unsatisfactory. Nothing definite could be found either macroscopically or microscopically leading to a fatal result.

If questioned as to the exact pathology of these suddenly fatal cases, the general answer would be that the heart muscle, as the result of the action of certain toxins, has undergone degenerative or inflammatory changes which so impaired its functional ability that it was unable to meet the demand made upon its ventricles by some slight extra strain. Such an explanation is plausible, but what does the post mortem show? A striking contrast between the empty heart chambers of such a death and the engorged auricles and right ventricle of true heart failure. Microscopically we find only a slight change in the muscle cells; rarely any significant inflammatory lesions. Looking back on the clinical history of such a case we note also the absence of all ordinary signs of a failing heart. No œdema, no venous stasis, no cyanosis, but extreme prostration; a blanched cool skin, and a rapid ineffectual heart beat.

The stage of collapse thus resembles the condition present after a severe hemorrhage, or in surgical shock.

This striking absence of all ordinary signs of heart muscle failure has made investigators question whether, after all, the heart is really involved in the circulatory failure. Romberg and several of his pupils in the Leipsig clinic, notably Pässler have recently investigated this problem very carefully and have published their results in a series of papers. At the outset they studied the mode of death in animals inoculated with one of the following infections: the pneumococcus, the bacillus pyocyaneus and the bacillus diphtheriae, and found that death occurred after rapidly developing symptoms of collapse similar in every way to the so-called heart failure in man.

They then repeated the inoculations in a large number of fresh animals and observed the blood pressure at short intervals. They found that it remained normal during the major part of the illness, only beginning to fall when collapse was impending.

Blood pressure, as we know, is dependant upon four separate factors, which may vary independently of one another:—

1st. The energy of the heart. 2nd. The peripheral resistance. 3rd. The elasticity of the arterial walls. 4th. The volume of the circulating blood.

The last two have little interest for us at the moment. The tone of the vessels regulating to a great extent the peripheral resistance depends upon impulses from the vaso-motor centres. Experiments show conclusively that this vaso-motor tone is an absolute necessity for the maintenance of the circulation, not only in the arteries, but also in the veins. Any grave injury to the vaso-motor center is followed by stagnation of the blood in the veins, and eventual heart failure because no blood is returned to it. To determine what factor was the cause of the great fall in blood pressure, Romberg and Pässler tried the effect of four procedures on their infected animals.

1st. Abdominal massage, which increases the work of the heart by emptying the abdominal veins into the right ventricle.

2nd. Temporary compression of the descending aorta above the diaphragm, calling for a maximum effort of the heart by greatly increasing the peripheral resistance.

3rd. Faradic stimulation of the nasal and anal mucosa producing extreme reflex vaso-constriction, if the medullary vaso-motor centre is intact.

4th. Transitory compression of the trachea producing asphyxia which stimulates strongly both medullary and spinal centers.

They found that with the first signs of impending collapse the heart action became more rapid but the blood pressure began to fall. The chief change noted at this time was a distinct diminution of the reflex sensibility of the vaso-motor center. The heart maintained its full vigor, and, even in some cases, by increased action, counterbalanced the tendency to fall in blood pressure.

When complete collapse set in, blood pressure sank rapidly, an entire absence of any vaso-motor reaction to sensory stimulation and even to the effect of asphyxia was now observed, but abdominal massage or temporary compression of the aorta still caused prompt elevation showing only a slight impairment of the reserve force of the heart. In the pneumococcus and pyocyaneus infection, this impairment was very slight, and could be explained by defective nutrition; but in the case of infection by the bacillus diphtheriae the vigour of the heart beat was distinctly lessened, and on autopsy the heart muscle showed evidence of parenchymatous degeneration. Even this, however, was of minor importance: the real cause of death being, in all cases, complete loss of vaso-motor tone. It seemed to be quite unessential what variety of organism was the infecting agent.

The question still remained as to which part of the vascular system was paralyzed. To determine this, barium chloride, which raises blood pressure by direct action on the peripheral nerves, and the muscles of the small arteries, was injected. Under its action the peripheral vessels responded almost as promptly as in the normal animal, indicating that they were not at fault. Paralysis of the vaso-motor center was evidently the chief cause of the collapse. As a consequence of its paretic condition the vessels lost their tone, the blood accumulated in the large veins of the splanchnic area and was not returned to the heart, and a profound anæmia of the brain, muscles and skin quickly developed leading to rapid death.

In other words the animals, under the influence of the poison on the vaso-motor center, were bled into their own veins and the heart failed for want of blood. That the heart muscle was not at fault was clearly demonstrated in one of their experiments in which, during a severe infection, by the bacillus pyocyaneus an endocarditis involving the aortic valve was developed. In the course of a few days cardiac hypertrophy set in; the animal died later on of vaso-motor paralysis, but the heart was found to have increased about one-third in weight.

Failure of the circulation taking place at the height of the infection, and due to vaso-motor paresis is thus to be sharply differentiated from

failure of the circulation taking place during the later stages of the disease, or actually after the febrile reaction has subsided, and due to a myocarditis. The former is characterized clinically by softness and emptiness of the pulse, and by a rapidly failing blood pressure. The latter is characterized by smallness, irregularity and inequality of the pulse, with indications of some dilation of the chambers of the heart, and developing signs of mitral insufficiency. The former tends to terminate rapidly in death; the latter develops more slowly and eventually all the indications of a failing compensation can be noted. At the autopsy we find no change of any moment in the heart muscle in the cases of vaso-motor paresis, while in the other class there are the signs of an interstitial myocarditis. In the past there has been much confusion of these two conditions and drugs have been unnecessarily and unjustly blamed. For successful treatment it is essential that we recognize what the condition is that we are dealing with before we decide on the therapeutic measures to be employed. In the early stages of vaso-motor collapse pure cardiac stimulants cannot be expected to have much, if any, value. Digitalis is the only exception, and it may do good, not as a cardiac stimulant, but owing to its action on the vaso-motor center and peripheral vessels. Atropine in small doses has also a definite action on the medullary centres and small arteries, and, I think, I have seen some benefit from its administration hypodermically 1-100 gr. twice a day. Strychnine also may be employed, but only for its general effect, and as a stimulant to the respiratory apparatus. Caffein has some value and is superior to camphor. The introduction of normal saline solution is capable of raising blood pressure for a limited period, and it may be associated with small doses of adrenalin. The action of both, however, is fleeting. It seems almost unnecessary to say that nitro-glycerine and its allies are distinctly contraindicated. As a mechanical measure raising the foot of the bed twelve or eighteen inches, may be of distinct benefit favouring the return of the blood to the heart.

With our present knowledge undoubtedly one of our most potent vaso-motor stimulants is cold, acting as a peripheral stimulant. It may be employed either in the form of a cold bath or ice-pack or locally. From the experiments of Romberg and Pässler we note that all stimulants have a rapidly lessening value as the stage of collapse approaches. Its action is, therefore, chiefly by way of prevention, and its value is to be reckoned, not by the fall in temperature so eagerly looked for by nurses, and which we know is always followed by more or less reaction, but by a rise in blood pressure, and fall in the frequency of the pulse. Much

of the benefit derived from tubbing in typhoid, is, I think, to be attributed to a stimulating action on the vaso-motor center.

Failure of the circulation in the later stages of the disease with developing signs of cardiac weakness is to be treated in similar lines to that of a degenerative myocarditis.

Closely allied to the collapse met with in acute infectious disease is the condition known as shock in surgery, due to exhaustion of all the important medullary centers, but in which vaso-motor depression plays the chief part. Crile's experiments show that in shock the heart muscle and its nervous mechanism is unimpaired, as is also that of the vaso-muscular system, but the vaso-motor center fails to respond to any stimulus, irritative, electrical, physiological or pharmacological. Vaso-motor stimulants while the center is so exhausted have little action, strong coffee, or a hypodermic of caffein citrate is one of the most effective. Normal saline solution raises, but cannot sustain, blood pressure and found that in a certain number of their patients the blood definite when shock is associated with profuse hemorrhage. Crile recommends the addition of adrenalin to the saline in the strength of 1-50000 to 1-100000 and directs it to be given intravenously, very slowly and continously.

In addition to these measures, absolute rest must be secured. The flow of blood to the heart may be assisted mechanically by raising the foot of the bed and in some cases by gentle massage of limbs and abdomen. The extremities must be kept warm.

There is another form of circulatory failure in which I have recently been much interested; the failing heart of chronic arterial hypertension. During the last few years, much study has been devoted to the condition of increased blood pressure, and perhaps a few remarks on this subject may not be amiss.

When physicians first obtained an instrument to measure blood pressure and found that in a certain number of their patients the blood pressure registered considerably above normal, anxious endeavours were at once made to reduce this excess by the administration of all kinds of vaso-dilators, and again therapeutics were sneered at, because they failed, in these cases, to effect a permanent reduction in the blood pressure. Only slowly did physicians realize the fact that permanent high blood pressure in certain individuals is a necessity of life and is, in a great measure, a compensatory manifestation. A recent writer says, "It is to be regarded as one of the great advances of modern medicine, that we are now able to read between the lines, so to speak, and to obtain

a new and clearer insight into pathological processes." Inflammatory lesions themselves are but the wall the tissues build against foreign invaders. The hypertrophied left ventricle fits itself for the extra burden laid upon it. What rash therapeutist would wish to prevent or hinder such changes? So with increased blood pressure. It certainly is not a condition to be desired: but it is, in many cases, to be regarded as nature's effort to prevent a greater evil; an effort to keep the circulation active through peripheral areas, which through the action of toxic products, metabolic or otherwise, or from a more mechanical interference such as rigid arteries and the like, have their vascular area abnormally limited.

Let me illustrate my meaning. Persistent high arterial pressure is, as we all recognize, one of the cardinal symptoms in chronic Bright's disease. Pässler's researches on this point are noteworthy. By excision of one kidney, and the removal of successive portions of the remaining one he was able to bring about the varying grades of renal insufficiency, uncomplicated by inflammatory or toxic influences. Animals thus operated upon, developed, first, high blood pressure: this was followed by a cardiac hypertrophy and finally by toxæmic symptoms. Very interesting also is the effect that cerebral compression has in raising blood pressure, described in such an interesting way by Leonard Hill.

Sudden cerebral effusion of any nature, owing to the fact that the cranio-vertebral cavity is closed, produces by compression an acute cerebral anæmia which would inevitably lead to loss of function and death if the medulla did not make a counter-balancing effort. Automatically, the vaso-motor center raises blood pressure above the intracranial tension, and blood is kept circulating through the centers. If the compression increases, the vaso-motor center follows with another rise and so on, and thus an effort is made to keep just ahead of the advancing brain pressure. Each rise, however, is not steadily maintained. Over-compensation is succeeded by a fall then a rebound again, giving rise to the Traube-Hering waves in sphygmomanometric readings. Clinically we have all noted a similar rhythmical variation in the action of the respiratory center in the well known Cheyne Stokes breathing, deep breathing coinciding with the period of high blood pressure and established circulation and apnœa with its interruption.

In this effort of the vaso-motor center, blood pressure often reaches a great height; nevertheless, even these high figures may be regarded for the time as salutary. In practice, however, the question arises frequently, Is hypertension in all cases necessary and desirable? May not some part of it represent an over-effort on the part of the organism, a

functional hypertension added to an essential one, or in the case of the cerebral effusion is not this extreme high blood pressure but part of a vicious circle which the physician must certainly attempt to break?

Careful and repeated examinations only will enable us to answer these questions. One point may be borne in mind. Temporary rises occur more readily and more frequently in patients with permanently increased blood pressure, compared with those in whom blood pressure is normal.

The treatment of chronic hypertension must be chiefly dietetic and hygenic. The diet must be made simple and very moderate in amount so as to avoid all excess of food. In this matter Chittenden's experiments on the amount of food necessary to maintain nutrition are extremely valuable. Except in extreme cases moderate exercise is beneficial. When it cannot be taken general massage may take its place with benefit. I have much faith myself in the daily use of a saline laxative especially if combined with the occasional use of a mild mercurial, grey powder or blue pill. A course of one of the nitrites is of distinct value in all exacerbations whenever blood pressure rises above what may be regarded as normal for the special individual. I have not seen any appreciable value from their continuous use in essential hypertension; indeed, such is not to be expected.

I have some faith, however, in the continuous administration of one of the iodides in small doses. I do not think they directly lower blood pressure as some have stated, but they do appear to lessen the viscosity of the blood, a distinct advantage in cases of hypertension.

In all these cases, however, the time comes when the heart begins to weaken, and as a result the blood pressure falls, and gradually all the signs of an uncompensated cardiac lesion develop.

A few years ago, under the delusion that the high blood pressure, in these cases, was the important condition I feared to employ digitalis, except in small doses, and only when combined with full dosés of the nitrites. I was surprised, however, to find that in many of my cases I had no results until I had gradually raised the amount of my digitalis until I had reached full doses, and the blood pressure had gained its former level. Only then did the œdema disappear and the signs of stasis subside. Many trials have convinced me that such patients demand digitalis in fairly full doses sufficient to maintain blood pressure at its high level lest their capillary circulation fails, and venous stasis develops.

We cannot, however, be forgetful of the fact that all those suffering from permanent high blood pressure are specially liable to sudden and

dangerous complications; anginal seizures, hemorrhages, uræmic convulsions, and the like. In the presence of such acute exacerbations threatening life, nitrites must be employed freely in larger doses and one need not hestitate to increase still further the dosage if the symptoms continue or become aggravated. Venesection in such cases may sometimes prove an effective agent if the nitrites fail us, or the case is very threatening. It seems almost unnecessary to add that at this stage of the disease rest in bed and the simplest diet are imperative.

A CASE OF TYPHOID FEVER. DEATH BEFORE ULCERATION.

BY

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(From the Pathological Laboratory of the Montreal General Hospital.)

Patient V.M., male, aged 25. Occupation fireman. Admitted to the Montreal General Hospital on June 5, 1907, complaining of headache, diarrhœa, weakness, fever and loss of appetite.

History of the present illness:—Onset very indefinite. Says he has felt run down for the past three weeks, during which time he has had an occasional headache, no appetite and felt listless. During the past few days has had diarrhœa which has gradually become worse. On June 3rd was at work all day feeling fairly well. That night, however, he was seized with severe headache and diarrhœa and felt chilly. The next day June 4th, was feeling much worse and remained in bed. A doctor was called in, and, suspecting typhoid fever, had the blood tested for the typhoid reaction, the result being negative. Admitted to the hospital June 5th. Present condition (June 7th): Patient is a well nourished and well developed man of 25 years. Is in a semi-delirious state into which he passed a few hours after admission. He is constantly muttering to himself, reaching out his arms as though trying to grasp some object in front of him, and picking at the bed-clothes. When aroused he will do as he is asked and occasionally will answer questions rationally. A few rose spots, fading on pressure, are present for the first time on the upper part of the abdomen and lower chest. Temperature since admission has ranged from 104 4-5 to 106. Patient does not respond to the baths. Pulse varies from 96 to 112, is of small volume, low tension, regular and dicrotic. Heart sounds are distant and weak; there are no murmurs. Blood count shows 6,200 leucocytes: complains of abdominal pain; abdomen is markedly distended: vomited several times: has diarrhœa and incontinence of fæces: slight epistaxis occurs at inter-

vals: spleen enlarged and easily palpated. At autopsy the following important changes were noted. There are immumerable, small, discrete, hæmorrhagic spots in the subcutaneous tissue over the back, on the anterior surfaces of both thighs, the sides of the abdomen and about the shoulder joints. The mesenteric lymph nodes are greatly enlarged, some being the size of walnuts. They are soft and on section are of a dark brown colour and hæmorrhagic. The retroperitoneal glands are also moderately enlarged. Numerous large and small subepicardial hæmorrhages are seen on the anterior and posterior surfaces of the heart about the auriculo-ventricular groove. Similar hæmorrhagic areas are found beneath the endocardium in the left ventricle. The myocardium in the gross is of good colour and consistence. Sections stained for fat in Sharlach R. show marked fatty degeneration in the form of finely divided particles scattered diffusely throughout the muscle fibres. Spleen:—wt. 565 grams. Greatly enlarged, being five times the weight of a normal organ. Capsule smooth and tense. On section the pulp is swollen and bulged; is of a dark red colour, moderately soft and friable, in places distinctly hæmorrhagic.

Intestines:—The mucosa throughout the jejunum, ileum and colon is swollen and hyperæmic. All the Peyer's patches are greatly swollen and project above the general surface as large flattened plaques, which are soft, intensely reddened and show no ulceration. The solitary follicles both in the small bowel and in the colon, stand out very prominently as small elevated nodules, 2 to 4 mm. in diameter, are soft and of a dark red colour. No ulceration is to be seen anywhere. Kidneys are enlarged and intensely congested.

The other organs of the body show nothing of special note.

BACTERIOLOGY.

A pure culture of a Gram-negative motile non-gas-producing bacillus is obtained from the spleen. The cultural features in every respect correspond to B. typhosus. In semi-solid medium there is a heavy cloud but no gas. Litmus milk is turned a lilac colour, denoting slight acidity which is permanent. Dextrose and mannit-serum-water containing litmus are reddened and coagulated. Lactose and saccharose serum-water are not changed. This organism is agglutinated with the blood of the patient in a dilution of 1-80; also with the blood of a patient in the ward who undoubtedly has typhoid fever. In this latter case the reaction is positive in a dilution of 1-20. Typhoid bacilli from stock culture are agglutinated in the patient's blood in a dilution of 1-80. Para-

typhoid alpha and beta in dilutions of 1-20 are negative. See following tables:—

Semi solid	Litmus Milk	Dextrose Serum Water	Lactose Serum Water	Saccharose Serum Water	Mannit Serum Water
Clouded	Slight	Acidity plus	No change	No change	Acidity plus
No gas	acidity	Coagulation	24 hours	24 hours	Coagulation
24 hours	Permanent	24 hours			24 hours

The histological lesions in the various organs such as the intestines, spleen and lymph nodes are specific of bacillus typhosus infection. In general, sections of spleen show marked congestion. The Malpighian bodies are everywhere swollen. The most noticeable feature in the sections is the presence of great numbers of large phagocytic cells containing chiefly red blood corpuscles. These cells are found filling up the blood sinuses, and often contain twenty or more erythrocytes. Many of the lining endothelial cells are swollen and show mitotic figures. The lymphoid and plasma cells throughout the pulp are moderately increased.

In sections of Peyer's patches and of the lymph glands, here also the most striking feature is the presence of large numbers of phagocytic cells similar in every respect to those in the spleen.

The sinusoids of the liver contain many of these large phagocytic cells which Mallory claims may come from the spleen through the portal circulation and are arrested in the sinusoids. Places are seen in which the blood channels are occluded by these cells, giving rise to definite areas of focal necrosis.

Here we have a most unusual case of typhoid fever. Clinically it is of interest only on account of the very severe toxæmia from which death resulted during the first week of the disease. However, it is in the pathological aspect of the case that the chief interest lies.

To fully understand a pathological lesion we must follow and study every step of its development, especially the initial changes. Where lesions can be produced experimentally this is a comparatively simple matter; but on account of the difficulty of producing typhoid fever in animals we are dependent on material from post-mortem examinations. As a rule death from typhoid fever does not occur until the third week of the disease or later. In this case death occurred on the seventh day, before ulceration had taken place in the intestines, so that here we are afforded a very exceptional opportunity of studying the earliest histological changes.

These early lesions occur almost exclusively in the lymphoid tissues of the intestines, the lymphatic glands and the spleen. They are characterized by the presence of enormous numbers of large epithelioid cells which arise from the endothelial cells lining the lymph channels. Many of these cells while still a part of the vessel wall show mitotic figures. This great proliferation of the endothelial cells and later their increase in size resulting from their phagocytic function, give rise to the splenic and lymphatic enlargement.

Mallory has pointed out that this proliferation is due to the direct action of a diffusible toxin, and further that a proliferation of the endothelium to such an extent as described above and so well depicted in the spleen and lymph nodes, is characteristic of the poison elaborated by B. typhosus Other bacterial toxins stimulate endothelium to proliferation but in no infection do we meet with any such picture as that in typhoid fever.

In any ordinary case of typhoid fever, that is, one in which death occurs during the third week of the disease or later, we find these large phagocytic cells free in the blood channels and lymph spaces in the active stage of proliferation as in this case.

The histogenesis of these large phagocytic cells in typhoid was always a source of controversy, until Mallory after studying such a case as ours, was able to trace the changes in the endothelium from that of simple swelling, on up through karyokinetic division of the still attached endothelium, to its separation and migration from the vessel wall. Similar steps are noted in the histological study of this case and I wish to place it on record as bearing out Mallory's observations.

SERUM SICKNESS AND SERUM DEATH: A COMPILATION OF SOME RECENT LITERATURE.

I.—THE SERUM DISEASE.

BY

CAMPBELL P. HOWARD, B.A., M.D.

The contributions of the Vienna School to the study of "Die Serum-Krankheit" offer most interesting reading to those interested in the practical questions of immunity. Since the introduction of serum-therapy there have been noted by many clinicians a series of phenomena occurring in patients who have received injections of the various bactericidal or antitoxic sera. In 1905 Pirquet and Schick published a monograph (Die serumkrankheit: Leipzig und Wein: Franz Deuticke) in

which they have collected all the clinical and experimental data on the subject.

General Clinical Picture:—Occasionally it is noticed that 8 to 12 days after an injection with varying amounts of serum, there appears at the site of inoculation an exanthem, usually urticarial in character, which rapidly involves the remainder of the body. This persists for but a few hours or at the most for 2 to 3 days. With the appearance of this rash the body temperature is elevated. Local glandular enlargement is common, but general glandular enlargement also occurs. Almost invariably there is œdema of a considerable degree, resembling in its site that of nephritis. In a few cases only there is a slight albuminuria on the third or fourth day after the appearance of the œdema. The general condition of the patient is as a rule little or not affected. In cases of long duration, prostration and emaciation may occur. Convalescence is rapid and occurs on the third or fourth day. A fatal termination is rare, and was never seen by Pirquet and Schick.

The incubation period is a very definite one. While immediately after the injection there is local redness, tenderness and slight swelling as a result of the trauma, these disappear in a few hours. Eight to twelve days later, without the occurrence of any prodromata the local and general reactions occur. The duration of the incubation period depends largely upon the disposition of the injected organism and not upon the nature of the serum. How it can be modified by reinjection will be seen later.

Fever is one of the commonest of the symptoms and is more constant than the exanthem. It is remittent in character with diurnal variations of 1° to 3° centrigrade. It lasts until the end of the clinical phenomena. The duration and intensity of the fever depend partly upon the individual disposition and partly upon the amount of serum injected. It is more apt to be the highest when associated with a morbilliform eruption, moderate with the urticarial and scarlatinal forms, and lowest with the erythematous type. The fever may be entirely absent and does not depend upon the exanthem, for both fever and exanthem are co-ordinate effects of the same cause. A gradual lysis with a progressively lower evening temperature is of valuable prognostic significance.

The Exanthem:—Hartung recognized four varieties: (1) Urticarial (2) scarlatiniform (3) morbilliform (4) polymorphous and exudative. It is impossible, however, to place certain of the exanthems of the serum disease under one of these four divisions. The rash appears first at the site of inoculation and may sometimes form the only cutaneous manifestation. Over the remainder of the body it is mostly symmetrical in

its distribution. The morbilliform and exudative forms occur mostly on the extensor surfaces of the extremities. The urticarial form, which is often very irritable, may be so extensive as to become confluent and form an œdematous infiltration of the skin, most marked at the site of inoculation, but sometimes also involving the face. Very occasionally hæmorrhagic eruptions occur.

Glandular enlargement:—The swelling of the glands at the site of the inoculation is one of the most constant symptoms. The local involvement, which early in the incubation period is slight, suddenly becomes marked and may be accompanied by a general glandular enlargement. There is pain and tenderness in the affected glands. This glandular enlargement occurs at the onset of the disease and subsides before its termination and is, therefore, of considerable prognostic value. Much less common is a moderate enlargement of the spleen which may persist for a couple of days.

Leucopenia:—During the incubation period the leucocyte count gradually increases and suddenly upon the appearance of the symptoms of the disease shews a considerable fall. This period of leucopenia towards the end of the disease is succeeded by a normal count. The leucopenia is due almost entirely to a diminution of the polynuclear cells.

Joint manifestations:—Joint pains, according to Hartung were present in only about 1.9 per cent of cases. The metacarpo-phalangeal, wrist and knee joints are involved in order of frequency. In addition to the pain, there is tenderness and limitaton of movement, but no other objective sign.

Oedema:—This is an almost constant symptom. It is not only visible and palpable but can be estimated by an increase in the body weight. In its situation it resembles the œdema of nephritis. It expresses the duration of the disease, hence its subsidence is also of great prognostic

Albuminuria is found only rarely and that at the height of the disease, two or three days after the appearance of the œdema, that is in the second to third week after the injection of the serum. It never exceeds $\frac{1}{4}$ pro mille. In the urinary sediment one may find a few blood corpuscles and casts. A hæmorrhagic nephritis has once or twice been seen. value.

The mucous membranes of the mouth and throat remain uninvolved in marked contrast to their condition in measles and scarletina. On the other hand a diffuse bronchitis occurs not infrequently and in a few cases a bloody diarrhœa.

General symptoms:—In a mild case the general condition of the patient is practically undisturbed. Restlessness and slight irritability

may be present. Vomiting is an exception. In prolonged cases a marked listlessness, anorexia and in the severest cases a profound prostration may occur.

Differential diagnosis:—The following points will aid in the differentiation of the serum disease from measles. 1. The time of the appearance of the rash (7th to 14th day after the injection). 2. The first appearance at the site of the injection. 3. The local glandular enlargement. 4. The absence of involvement of the mucous membranes. In scarlatina (1) the initial vomiting (2) the angina (3) the high fever and (4) the infection of other children in the ward are all points which will aid us.

Prophylaxis:—Ruffer and Daut have shewn that the serum disease is less frequent the smaller the amount of horse serum used. Hence one should aim at using the most concentrated serum possible. Further, Bujwid has demonstrated that the fresher the horse serum, the more toxic it is: hence he recommends that the serum should be kept a few months before use. Spronecks has also shewn that heating the serum to 59°C lessens its toxicity, and rarely produces an exanthem.

Reinjection:—Pirquet and Schick in 1903 shewed experimentally that the organism retains the ability for a long time upon further inoculation of the pathogenic substance to respond more quickly with the disease phenomena and to complete the process in a shorter time. This is seen clinically in the tuberculin reaction in a tuberculous patient, in revaccination for small-pox and following the administration of various antitoxic and bactericidal sera. Pirquet and Schick pointed out that a certain interval must elapse between the first and second inoculations for this increased susceptibility to occur. If the interval between the two injections be three to six weeks an "immediate reaction" (sofortige Reaktion) occurs i.e. the incubation period is reduced to 24 hours. If, however, the interval between the injections be a long one as three months or more, an *accelerated reaction* (beschleunigte Reaktion) occurs i.e. the incubation period is shortened from 7 to 12 days to 5 or 6 days. Further upon reinjection it has been shewn that the serum disease occurs more frequently, requires a smaller dose of serum for its production and is accompanied by more intense symptoms.

The immediate local reaction:—It has been noted that in the reinoculated the local œdema at the site of inoculation was more marked, and out of all proportion to the amount of serum used, being in this respect unlike the local reaction in previously uninoculated people. The *immediate general reaction* implies the appearance of the fever, rash and other general symptoms within the first 24 hours after the injection.

This occurs not only in re-injected people but also occasionally after primary inoculations. In one case Pirquet and Schick noted a profound and alarming collapse. They believe that lethal cases have occurred only when an intraveneous injection—purposely or accidentally—has been carried out. As far as they know all the fatalities have followed primary inoculation.

In the *accelerated reaction* the incubation period is 5 to 7 days and differs from that of the immediate in being unaccompanied by the local œdema. Fever, exanthemata, joint pains, and œdema occur after the onset of the disease. As to whether the "accelerated reactionability" will endure the entire life of the patient is as yet unknown: the longest interval on record is 7½ years. The occurrence of an "immediate" or an "accelerated reaction" can be considered to be diagnostic of a previous injection with a specific serum.

Theories of the serum diseases—Hamburger and Moro believed that the phenomena were due to the formation of "Precipitins," which by interference with the circulation mechanically caused the exanthem. It was afterwards shewn that in the living blood no precipitin was produced. Pirquet and Schick also demonstrated that the precepitin appears much later than the phenomena of the disease and may be entirely absent.

Pirquet and Schick believe that the phenomena of the disease are produced by the meeting of "antigens" and "antibodies." The antibodies are not identical with the precipitins. There is then a chemical interaction between the antigens of the horse serum and the antibodies of the vital reaction. Bail in 1905 called attention to the rapidity with which tuberculous guineapigs die when reinfected with B. tuberculosis, or when healthy animals are injected with bacilli plus the body fluids from a tuberculous animal. According to Bail this phenomenon of "rapid death" depends upon the presence of "aggressins," which are the products of the bacteria against the bactericidal substances produced by the infected organism: these aggressins paralyze the leucocytes, and upon a second inoculation are able to act with a more complete virulence.

Wolff assigned the phenomena to the presence of an "endotoxin;" a substance contained in the body of the bacterium which on the destruction of the bacteria through the bacteriolytic serum, is liberated and has an injurious action on the organism. This endotoxin is more quickly set free upon second dosage. In other words Wolff like Bail believes serum disease to be a *bactericidal* immunity in contradistinction to the *antitoxin* immunity of Pirquet and Schick.

Behring and Kretz assign to *amboceptor* production the principle role. Upon first injection there are developed specific side chains: if re-injection

occurs during the production of the latter, there occur many more side chains to the toxicable substance: these new side chains are greedier than those already destroyed and aid the toxic influence as "intermediate bodies." Quite recently Gay Southard (Jour. Med. Research, vol. 16:) have published their views on serum anaphylaxis i.e. increased susceptibility of the serum of the guinea pig. They believe that this hypersusceptibility to intoxication by horse serum in animals previously inoculated with serum "is due to the non-neutralization and non-elimination by the animal body of a factor in the serum for which they suggest the name "anaphylactin." The intoxication caused by the second injection depends upon factors of the serum other than anaphylactin. These factors correspond to constituents of the serum eliminable by the animal body. The reaction of intoxication would seem to be a cellular one, "dependent upon a heightened power of assimilation on the part of the cells which have been subject to the anaphylactic substance over a definite period of incubation."

Before closing one must state that the comparatively rare occurrence of the severer manifestations of the disease in primary inoculations and still more in reinoculations, does not mitigate against the usefulness of antidiphtheric and other sera.

SUDDEN DEATH FOLLOWING SERUM INOCULATIONS.

BY

OSKAR KLOTZ, M.D.

For the last ten years experimentors on the subject of immunity have devoted most of their time to determining the amount and character of resistance which the animal body may develop against foreign substances. This resisting power has been amply shown to develop against certain toxins of both animal and vegetable origin. Several views have been brought forward in explanation of this process of immunity, but the enunciation of Ehrlich has found most favour and has withstood the most critical tests applied to it.

While serum therapy was being investigated by innumerable experiments, the investigators not infrequently encountered a phenomenon which seemed wholly opposed to the teachings of immunity. It was found in some cases, that the experimental animal, instead of developing an increased resistance to the foreign substance, which, in a single dose, was entirely innocuous, would become highly susceptable when the animal was "sensitized" towards it.

These findings in experimental animals were found to be parallel to those noted in man. Over three hundred years ago, an attempt was made to restore the blood quantity in the human subject by direct transfusion of another animal's blood. Cases of anæmia, poisonings, and severe infections were treated by transfusing the blood of sheep. The practise, however, fell into disuse as the dangers from this method became apparent. The treatment was associated with high fever, embolism and hæmorrhages, with death in a certain number of cases. These symptoms have been stated to be due to the hæmolytic and clotting action of the foreign serum. Excess of fibrin is liberated, which, in conjunction with the debris of the broken down red blood cells leads to a blocking of the capillaries in different organs. In some instances, the results were not so severe and an urticarial rash alone gave evidence of the unfavourable reaction of the transfused blood.

An attempt was also made to replace the blood solution by milk, but with no better results. A foreign element was present in the milk which led to results quite similar to the introduction of foreign blood.

With the introduction of antidiphtheritic serum, the process of injecting an alien serum into the human body became more frequent, and this practice has continued ever since, and has extended to a variety of other infections besides diphtheria. It was, however, not very long after the introduction of serum therapy that the ill effects of even small doses of serum were noted. The majority of these effects consisted in urticarial rashes and a temporary nausea. In other instances, the symptoms were more severe, being accompanied by vomiting, faintness and respiratory distress, while not a few developed arthritis later on. In a few cases death has been the result of the serum inoculation. Gottstein in 1896 collected eight cases of death following the injection of serum, four of whom had received the serum, only as a prophylactic measure. Rosenau and Anderson have in 1906 collected nineteen cases in the literature, of this unfortunate accident, and they are personally aware of several more cases which have not been reported. The nature of the death following the administration of serum is hardly to be confounded with that of any other disease, even when diphtheria is present. The symptoms in man may come on within five minutes of the treatment, with collapse, unconsciousness, convulsions and death as the result. Death, in some instances, takes place within fifteen minutes, and the symptoms are alike whether the patient is suffering from diphtheria or not. The following cases illustrate the nature of the disease:—

A characteristic case is reported by Dr. Thun, (Cent. f. Kinderheil, 1898, iii, p. 293). G. I., a child of 3 1-2 years was given Behring's

antitoxin at 12 o'clock noon. There was diphtheria in the family, and the child had complained of slight sore throat in the morning. Child was then put to bed. One hour after the administration of the serum, she became restless, and threw herself about. Her face became pale, and the extremities cold. There was no difficulty of breathing. At six o'clock the doctor was called and found the child dead.

Saward, (B. M. J., 1902, 1, p. 1025.) reports two cases of sudden syncope after the administration of antitoxin. The patients were sisters with clinical symptoms of diphtheria. Both received 1500 units of antitoxin and were removed to the isolation hospital. The one girl was attacked by sudden syncope and died shortly after admission. The sister also became collapsed and recovered only with great difficulty.

In another case, Dogge, (Pediatrics, 1896, 2, p. 12.) gave 10 cc. of antitoxin to a child of 3 years with a very mild attack of diphtheria. He used all precautions of antisepsis. A few minutes after the administration he was hurriedly called by the father, and before he reached the house the child was dead.

Probably the most noted case on record is the unfortunate death of Professor Langerhans's two year old son, who was given 1.2 cc. of serum as a prophylactic measure. For five minutes after the injection, the child showed no symptoms, then the child became restless and cried out in an unusual way. He would often throw himself about, while a fit of coughing would ensue. When this had ceased, the child became limp and pale, and his head sank to one side. At intervals he cried out convulsively. The child had no difficulty in swallowing. A second fit of coughing began about thirty seconds after taking some wine, followed by localized muscular convulsions and frothing at the mouth. The child died in ten minutes. At autopsy no anatomical lesions were found, save some vomitus in respiratory tract.

These untoward effects of the treatment by serum, have led to extensive investigations along these lines. The unanimous opinion of the experimentors and physicians has been that the *benefits of serum therapy far outweigh the danger.* When one remembers the thousands of people receiving serum therapy with beneficial results in their disease, and without evil results from the serum, the ill effects fall very much in the background.

Nevertheless, it becomes the duty of the investigator and the physician to minimize the undesirable qualities of the serum. It has been shown that the antitoxic principle in the serum plays no part in bringing about any of these results. The alien serum alone is responsible for this.

This sensitive condition to serum on the part of the animal body, has been referred to as serum anaphylaxis. Experimentally it has been found that an animal becomes more sensitive to the toxic principle of a serum when it has received a single small sensitizing inoculation twelve days previously. If after the lapse of from twelve to fourteen days after the inoculation of the sensitizing dose of serum the animal be given a second much larger amount of serum, violent symptoms arise and even death may occur. The first or sensitizing dose may be an extremely small one, even as little as 1-100000 of a cc., the second or "acting" dose in guinea-pigs is 5 cc. These inoculations may be made, either subcutaneously or intraperitoneally.

Gay and Southard noted definite lesions to occur in both the fatal and recovery experimental animals. Hæmorrhages of the stomach, cæcum, lungs, spleen, heart and adrenals occurred in order of frequency, and a fatty degeneration of the endothelium of the capillaries was present. They also found that the guinea-pigs which had been sensitized contained a toxic principle in the blood which was capable of sensitizing other guinea-pigs.

Along this line some interesting work has been done by Vaughan and Wheeler. They showed that the proteid molecule of egg white contains a toxic and a non-toxic group. By the injection of the egg-white they were able to sensitize animals for a subsequent dose. The incubation period for this hypersusceptibility was 10 to 12 days. They noted moreover, that the non-toxic group did not produce the sensitiveness to subsequent inoculations.

It is remarkable that herbivorous animals may be sensitized by feeding them with the serum. In this case, larger amounts of the serum must be given than when the serum is inoculated. In man and omnivorous animals a single dose has at times the effect which the two inoculatons have in the guinea-pig and rabbit, and it is further found that the definite incubation period of 12 to 14 days is not constant in the former

Attempts are being made to remove from the serum the toxic principles there present, and some success has been achieved by the removal of the globulins by a precipitation. It is further to be noted that with the present methods of concentration of the serum, smaller amounts of it are necessary to administer the same quantity of the anti-toxic principle than was formerly the case. As the quantity of the "acting" dose plays some part in the character of the symptoms, it is hoped that this method too has decreased to some extent the untoward serum effects.

A full study of the cause of sudden death following the injection of horse serum is given by Rosenau and Anderson in the Hygienic Laboratory Bulletin, No. 29, Washington.

GENERAL PERITONITIS.

BY

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ASSISTED BY

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In choosing the subject of general peritonitis for the paper which our secretary was so kind as to ask me to read before you this winter, I had in view rather the recording of certain beliefs which had gradually come to occupy a more or less fixed place in my mind, and the reporting of results in cases that it has been my lot to treat, than the compilation of statistics or the consideration of the question in its general aspects.

I wish therefore to speak only upon certain sides of the subject: first, the definition of the term; then the bacteriology of the condition and its relation to prognosis; then the treatment, especially the moot points of lavage, and drainage; finally, the results. And I may say that I wish to confine the paper to cases of general peritonitis dependent on appendicitis and typhoid perforation.

Definition.—Peritonitis has been classified from several points of view; thus, according to the character of the exudate, whether dry, or plastic, serous, sero-purulent, or suppurative; again according to the variety of the bacteria supposed to have caused it; and finally, according to the extent of serous surface found to be involved at operation or at post-mortem. In judging the results of operative treatment, the last is the one usually understood; and, indeed, in the present state of our knowledge, it is the only one which we can use for purposes of comparison. Even so, it must be said, comparisons must remain rather unsatisfactory; for we find one man claiming to have cured fifteen out of sixteen cases of general peritonitis, and another thirty-five out of thirty-six, while another confesses that from 60 to 80 per cent. of his cases have died.

It is difficult to understand the reason of so great differences; and I think it is legitimate to enquire, on the one hand, of those whose results are so bad, whether they accept as general peritonitis only such cases as show the presence of pus from liver to pelvis; whether in operating they do anything that in the general opinion is shock-producing, such as evisceration; and whether they take active measures to prevent shock, not to mention many other details of importance. On the other hand, one may enquire of those whose results are so good whether they refuse the chance of operation to moribund patients;

and whether they are quite positive that in all their cases there was pus present in the left side of the abdomen as well as in the right and in the pelvis. Differing conceptions as to definition and a differing selection of cases may make a great difference in mortality figures.

As a matter of fact the tendency has lately become marked, especially among American surgeons, to abandon the term general, and substitute for it two others: spreading or diffuse, and universal, the former meaning an inflammation which is not walled off by adhesions, the second an involvement of the whole cavity from diaphragm to pelvic floor. Now, while all will agree that a universal peritonitis rarely recovers, it is equally true that a comparatively limited peritonitis, say, that in which only the right iliac region and the pelvis are bathed in free pus, ought rarely to die. And yet I strongly suspect that in many of the cases which form the late statistics of Murphy, Blake, Deaver, Ochsner and others, the involvement is no greater than of the right side and pelvis. They are given the name of diffuse or general peritonitis because there is no walling off, and the operative cure goes down as a cure of general peritonitis.

It is therefore of importance to state exactly in the publication of results, what one understands by the term general. At the Royal Victoria Hospital I have learnt, following Dr. Bell, to set down as general peritonitis only such cases as show upon a sufficient exploration the presence of free pus over at least the whole lower half of the abdomen. Anything short of this is not general. The term, it may be admitted, is unsatisfactory, in that it means, strictly speaking, universal. Yet the word has become such a solid citizen of medical terminology that it would be difficult to displace it. And after all, such an objection is somewhat of an academic one, natural enough to the mind of the pure pathologist, but with no strong appeal to the operating surgeon, who, if he can manage to cure a patient in whom he finds pus everywhere below the umbilicus feels justified in saying that he has cured a case of general peritonitis. One condition, however, I think it necessary to set, to wit, that in order to be certain that the peritoneum is so widely involved as this definition implies, two lateral incisions, or one large median incision, are required. When Murphy makes one small incision for the removal of the appendix, avoids handling or even seeing the rest of the intestines, and then sets the case down as one of general peritonitis, we are justified in taking issue with him upon the matter of his definition. It is impossible under such conditions to be quite certain how far the pus extends; the purely clinical diagnosis is, in this matter, too uncertain a one to serve as a sure basis for statistics.

And again, when Blake judges the extent of infection by the amount of pus washed out of a small lateral opening through his irrigating tube, the same objection is surely justified.

Bacteriology.—The bacteriology of peritonitis is a chapter which is still far from being closed. The majority of us have been accustomed to believe that nearly all cases of peritonitis, more especially of appendix-peritonitis, were due to one or both of two micro-organisms, the B. coli, and the streptococcus. We have hardly thought it necessary to remember, if we ever knew, that there were numbers of different strains of the colon bacillus, and greater numbers of different strains of the streptococcus; we have even frequently neglected to add to the latter the qualifying term "pyogenes." We have taken comfort when the pathologist reported to us that the smears from that last case showed B. coli only, for then we said, "He will not die," (although often enough he did die); and we have felt depressed when we were told there were streptococci present; for then we said, "He will die" (although sometimes he did not). Now, I do not desire to contradict flatly this general impression, because sometimes it seems to justify its existence. But, the question is, have we come to any sure ground in our knowledge of the bacteriology of peritonitis?

As a partial answer to this question, certain observations, as I believe, may justifiably be made.

First:—A large part of the published results of the bacteriological examination of peritonitis cases is untrustworthy, because of faulty or insufficient technique. I need not here go into the technical details; and will only say that in most instances, so far as one can gather from the reports, no plating out was done, no examination as to motility; often, indeed, no differentiating into acid and alkali-producers. I know, that in the hurried routine of hospital work,—and I am not here speaking of our own hospitals, although we too in the past have sinned,—many times a report of bacillus coli and of staphylococci or streptococci must have been sent in, based upon nothing more than a smear stained by Gram. A stumpy Gram-negative bacillus was B. coli; a Gram-positive coccus was a staphylococcus unless it showed chains, when it was a streptococcus. Such reports are worse than valueless; they are misleading. We know that the range of the intestinal bacteria is very great. Ford isolated and classified over fifty varieties. In smears obtained from an appendix abscess I used constantly to discover, in so far as morphology and staining reactions carry us, a great many more forms than would grow out on culture media. The question in my mind always was whether some of the forms which refused to grow on ærobic media were nevertheless pathogenic.

If, however, we leave aside for the moment the question of pathogenicity and consider only that of the mere occurrence of bacteria in peritonitis we may say briefly that the few reliable observers agree that the bacillus coli is by far the most frequent organism to be recovered from the peritoneal exudate; that the staphylococcus albus comes perhaps next in frequency, less often the aureus; that mixtures of the bacillus coli and staphylococci are also very frequent; and that pure streptococci are quite rare. There is a general agreement concerning the effect of a pure streptococcus infection. It is extremely apt to be fatal. This remark does not apply to cases in which the streptococcus is found associated with the others. There is considerable disagreement, however, concerning the rôle of B. coli. Those who have done really good work upon the subject may be counted upon the fingers of one hand. Tavel and Lanz in 1893, and again in 1904; Veillon and Zuber in 1898; Hewetson, Harvey Cushing, E. M. Corner, and finally Dudgeon and Sargeant in 1905. The first named considered the bacillus coli as of no greater pathogenic importance than other intestinal bacteria. On the other hand, Laruelle and Malvoz considered it really the only pathogenic agent in perforative peritonitis. Cushing stated his belief that the bacillus coli, being more in evidence, was frequently held responsible for peritoneal infection due to a more virulent but culturally less vigorous organism; in other words, that the frequency of the bacillus coli in cultures was due to its crowding out the streptococcus which is more likely to be the essential cause of the peritonitis. This opinion is the most popular one at the present time. Veillon and Zuber believed that these ærobic bacteria had comparatively little to do with any serious case of perforative appendicitis, the real cause of which resided in the anærobes of the colon. Hewetson failed to find anærobic bacteria. Corner supported Cushing's view. Finally, Dudgeon and Sargeant, whose work seems to be by all odds the most extensive and careful yet published, declare their belief that the bacillus coli is responsible for the majority of the deaths, and that the streptococcus and the bacillus pyocyaneus, while rather more fatal than the bacillus coli, are comparatively rare. They also allotted a considerable share of importance to the staphylococcus albus, which they found very frequently in combination with the bacillus coli. They believed it to be the first to pass out through the intestinal wall, and they attributed to it a certain protective action against the subsequent inroads of the bacillus coli.

It is thus seen that there exists very great disagreement among competent observers as to the essential pathogenic organisms concerned and as to the pathogenicity of each.

Some years ago I had the opportunity of examining a considerable number of cases of local and general peritonitis bacteriologically, and I endeavoured to do so with more than ordinary care. As to the actual occurrence of bacteria in the pus my results corresponded approximately with those of other observers, save that I was able to find as a rule by plating direct from the pus a larger number than others had found of bacterial species in any given case. I found as many as five different varieties in one case, and frequently three. I need not repeat, in this place, the bacteriological details, but would only say that many of them were less well known varieties, described in Ford's monograph upon intestinal bacteria. There were to be found both alkali and acid-producers. Inasmuch as many of these possess pathogenic properties it seemed to me then, and it still seems to me, that it is practically impossible to say that one or the other of these bacteria is pathogenic and the others not. Nobody dreams of asserting that some less well known organism of the Petruschky, or the Eisenberg group is the cause of peritonitis following appendicitis; still I have found such not infrequently in association with the bacillus coli and others, and strictly speaking, who can say that they were not, if not in whole, at least in part, the cause of the peritonitis in question? Among five organisms isolated which of them is the cause of the disease? Another consideration which adds difficulty to the subject is this, that if there are different strains of bacillus coli, of the staphylococcus, and of the streptococcus varying from each other not only in cultural characteristics but in their pathogenic effect, we must be unaware of the pathogenic power of any particular organism that we may happen to isolate. Suppose we endeavour to ascertain its pathogenicity by animal experimentation, we are met with a further difficulty in the fact that an organism which is pathogenic for one animal may not be so for another or for man, while the contrary is also true. Further, we know also that the virulence of any one strain, say of bacillus coli, varies under varying conditions. A bacillus which is nearly harmless in the normal intestine may become, under conditions of intestinal stasis, or symbiosis, extremely virulent. I do not wish to exaggerate the difficulties, but I maintain that we are far from being in a position to speak with accuracy upon this aspect of the subject. As for me, I am agnostic. I do not know. When we come to consider all these difficulties it becomes comprehensible that the prognosis based upon the bacteria found in the exudate must rest upon very insecure grounds.

One further remark as to this habit of establishing the prognosis from the bacteriology,— the prognosis depends enormously upon the stage of the disease, the resistance of the individual and the character of the

operation. For instance, Dudgeon and Sargeant are strongly impressed with the great pathogenic power of bacillus coli, but when we look into their results we find that their cases of general peritonitis showed a mortality of 70 to 80 per cent., probably because the majority of them were treated by large incisions with evisceration and extensive lavage. Many of them we find died of shock, probably on account of the evisceration, and the authors acknowledge that such heroic measures counted to a considerable extent for the high mortality. The death, which they ascribed to the presence of the bacillus coli was more likely due to evisceration, and if it had been operated upon by, let us say, Murphy, would probably have got better.

Thus we may conclude that a prognosis based upon the nature of the bacteria present must be dubious because unjustified by accurate knowledge. As a matter of fact, clinical considerations are far more reliable, and, consciously or unconsciously, however much belief we may place in the report of the pathologist, we judge the outlook for our case upon his clinical condition. On the other hand, the extent of the involvement of the peritoneum, while unsatisfactory upon the whole, offers much more reliable ground upon which to base a prognosis. In an analysis of seventy-three cases of appendicitis which I made in the year 1899, I found a mortality of the unperforated cases to be nil, that of the localized abscesses also nil, that of general peritonitis as defined above, 90 per cent. That year showed an excessively high mortality, but the yearly average since then has varied between 40 and 70 per cent. In other words, when the lower half at least of the peritoneal cavity is bathed in free pus the outlook becomes very dubious. Where the pus is localized, even though the abscess be very large, the outlook is enormously improved.

I would suggest, therefore, that for a basis of comparison the extent of involvement of the peritoneal cavity is for the time being the most reliable. No doubt we have need of a very large series of statistics which will take into account the various clinical conditions of cases, such as the lapse of time from perforation to operation, the age of the patient and various other things, before we can advance materially in the refinements of prognosis in this condition.

Treatment.—The treatment of general peritonitis should be based upon an accurate knowledge of the mode of action of the attacking organism and the mode of defence of the organism attacked. In these respects we have made considerable advances in recent years.

As to the means of offence, we now know that the ordinary bacteria to which we ascribe pathogenic action in peritonitis do harm mainly

by their endotoxins; they do not liberate toxin until they die; to kill them and leave them in the peritoneal cavity is in a sense dangerous. But, in fact, the bacillus coli and allied organisms kill, probably by a bacteræmia, an excessive invasion of the blood current, either rapid or gradual, with liberation of an overdose of endotoxin in the blood as a result of the bactericidal action of the latter. Lately, Peiser of Breslau, and Buxton of New York, have demonstrated that the greater part of bacterial absorption, when the peritoneum is suddenly flooded experimentally by a mass of bacteria, occurs within the first hour or two: that its course is through the diaphragm, the anterior mediastinal glands, and so into the blood current. Following this Peiser showed that there was a period of greatly-slowed bacterial absorption. This corresponds with the period of reaction on the part of the peritoneum, the exudation of plasma and deposition of fibrin, with outpouring of leucocytes. Buxton regards the early deaths after infection with bacillus coli or streptococcus as being probably due to the rapid early invasion of bacteria, with their subsequent proliferation in the blood and organs. No doubt the organisms are still slowly absorbed from the peritoneum following the early rapid rush into the circulation: but they are absorbed in reasonable doses. In this connection an experiment of Peiser's was very remarkable. He found that if he disturbed the process of slowed absorption by injecting salt solution in small amounts into the peritoneal cavity of his animals, this disturbance was sufficient to cause death: in some way it evidently promoted absorption of bacteria. The controls lived. The exact mode of disturbance was unknown: but probably it interfered with the endothelial and phagocytic defence of the peritoneum.

The means of defence have been indicated partly. There can be no doubt but that the main part of the battle takes place in the peritoneal cavity. First, the peritoneal exudate, which is the response to infection, has been proved to be bactericidal to a certain degree. I believe that, in addition, the exudate of leucocytes and fibrin is mechanically a hindrance to the absorption of bacteria. But more important than this is the phagocytic power of the endothelium and the exuded leucocytes. We are too apt to forget Lennander's dictum that "it is the infection that kills; the peritonitis is what saves." The peritoneal reaction therefore, is what we must be thankful for. The most fatal cases are those in which this reaction is practically absent.

It has often been a matter of surprise to me to find a very widespread distribution of the infection, evidenced by sero-pus, in what was evidently a very short time after perforation. The explanation of this

may be found probably in an experiment of Peiser's; injecting a small amount of a bacillus coli culture into the peritoneal cavity, he found it distributed to the remotest recesses of the abdomen within five minutes. This by the way. When therefore we come to consider the question of operation in general peritonitis, we have, I think, to keep certain principles in mind. In a general way we must first remove the cause; next, avoid helping the bacteria present to a quicker absorption; and third, we must not hinder the organism in its struggle against bacteria; on the contrary, we must help it if we can. I do not wish in this place to discuss the various operative procedures of well-known surgeons, but will set forth briefly the principles of operation which appeal to myself.

1. The removal of the cause must be carried out in the shortest possible time, because prolonged ether and much handling lessen the patient's resisting power. This is self-evident.

2. Irrigation of the cavity is certainly to be done when there are gross intestinal contents free in the cavity. The sero-pus, which is the expression of a saving peritonitis, as well as of a bacterial infection, and which consists only of exuded blood-plasma turbid with numerous phagocytic cells, and with bacteria, many of which are already killed, may or may not be washed or mopped away. I do not think that in the present state of our knowledge we are able to determine the question of irrigation definitely. Being left, the endotoxins liberated by the destroyed bacteria may be of danger to the organism, or the bacteria still unkilled may overcome the phagocytes and go on to produce bacteræmia or local abscesses. That irrigation will remove a large number of these bacteria and at the same time the bactericidal and phagocytic fluid in which they are held, is, I think, self-evident. That it may also wash off the microscopical layer of fibrin and the degenerated endothelium of the bowel serosa, and in this way open paths for very rapid absorption of the bacteria which remain is also possible; although, to my mind, not at all so certain as some maintain. Lavage respects neither friend nor foe. I believe that it does harm at times and good at times. Buxton suggests that rapid death after irrigation as we see it occasionally, is due to very rapid absorption of bacteria, and Peiser has brought experimental evidence which points more or less to the same conclusion. The clinical experience of modern surgeons, who irrigate without evisceration or much handling, does not, I believe, confirm this belief, rather the contrary. I am speaking now of those cases in which the intestines are bathed in a thin sero-pus which is quite without localizing tendency. Murphy and Blake are perhaps the two who claim the great-

est percentage of recoveries. One irrigates, the other does not. It really does not seem to make so much difference as experimental work would indicate. The charge that irrigation spreads infection is to my mind unfounded. At least, it need not occur. For my part I believe from experience that if one makes moderately free incisions, and holds them well open, and if one in addition elevates the head of the table, the upper half of the abdomen will never be reached by the fluid. In a large number of cases, combining my own and others, I do not think I have seen a spread of the infection in this way. On the contrary, when patients die, after irrigation, we nearly always find it is not from a spread of the peritonitis, but from the infection already absorbed.

Let us suppose then that we have removed the cause, and that we have either washed or not washed, mopped dry or left the seropus in as a supposed element of protection, what are we to do about drainage?

It is in regard to this point that I have come to hold more or less radical opinions. In the last four or five cases, I may say at once, I have mopped the cavity dry, with or without lavage, without caring much whether I got it quite dry or not; and then closed without drainage. These cases have done uniformly well. The reasons for this procedure I may set forth in a series of propositions; and, to provoke discussion I will make these absolute, realizing, however, that they must suffer exceptions.

1. Having removed the cause and, if you like, the serous fluid holding probably dead bacteria in suspension, what need is there for drainage? It must be understood that only such cases are meant as show no material amount of lymphous exudate in patches, nor any foci of necrotic material. The live bacteria may go on, it might be urged, to cause infection and abscess. This is occasionally the case, although experience proves that the peritoneum in nearly all cases is fully able to dispose of what is left. But, in any case, what do we see clinically, when a drain is put in? The drain yields after the first few hours, being exhausted, a drachm or so of clear serum, which comes from the immediate neighbourhood, from the canal formed by adherent bowel. What becomes of the general infection in the rest of the abdomen? It is overcome without a sign. If the case dies, what do we find at post mortem? The peritonitis cured, and the cause of death septicæmia; or else, if the patient live for a number of days after operation, localized abscesses here and there through the abdomen, with no tendency to break into the drainage tract. One exception must be made. Where there is any

area of necrotic tissue left in the cavity, a drain must be placed to that point, because it will certainly go on to frank suppuration. It must be made extra peritoneal. When the appendix is removed, and the stump turned in, and there is no infectively infiltrated tissue in cœcum or omentum left, or in the pelvis, then a drain is not required. When there has been local abscess of some days standing, it must of course be drained; or where the general peritonitis is of some days standing and has resulted in pocketing of pus, these pockets must be drained. But with free pus and no adhesions, drainage is unnecessary.

2. I will go further, and say that drainage of the general peritoneal cavity is impossible. Drains do not drain. To this conviction I have come both from clinical and experimental work. Often and often has it been my duty to exhaust a tube drain in the pelvis. In my experience it was impossible, after the first three or four hours, during which one got two or three drachms of turbid serum, the remains of the irrigation saline, to exhaust more than a drachm of fluid; and this was clear serum at first, evidently the reactionary fluid from the surrounding bowel and omentum which, plastering itself against the drain, walled it off in a very short time. If gauze were used as a drain the walling off was all the quicker and greater.

In a long series of experiments upon the production and prevention of adhesions, I have found that there is no surer agency to provoke walling off than gauze. Yates of Chicago a year or so ago proved this fact experimentally to a superfluity. The relative encapsulation of the drain, he says, is immediate; the absolute encapsulation occurs in less than six hours. In one case of mine done two years ago in which I had inserted a pelvic drain, there occurred a further peritonitis with free fluid. This fluid had entirely failed to find its way into the pelvis and be drained. Drainage was an entire failure. Therefore drainage of the general peritonitis cavity is impossible, at any rate after the first few hours.

Suppose, however, that infection should persist and abscesses be found, will a drain then serve its purpose? I believe not. If localized abscesses develop, in the majority of cases they are not situated where the drain is, and do not evacuate themselves into the drain.

3. I will go further and say that drainage in these cases may do harm. They excite the adhesion of bowel to bowel or omentum; they actively provoke adhesions.

Inasmuch as the adhesions which are apt to follow a peritonitis play a large part in its mortality, I would like to make here a short digression, and refer briefly to the pathological histology of peritonitis, insofar

as it concerns the development of adhesions. Briefly then, the stimulus from bacterial infection causes a swelling, and probably also exfoliation, with ultimate degeneration of the endothelial cells. With this there occurs an outpouring of the blood plasma from vessels in the sub-peritoneal alveolar tissue together with an emigration of leucocytes. By a process of clotting the layer of fibrin is soon deposited upon the serosal surface, and, as the result of its sticky qualities, we get shortly an agglutination of neighbouring coils of bowel, a condition which is favoured by the reflex paralysis of peristalsis so frequently found in peritoneal infection. If adhesions are to occur, these fibrinous layers must become organized, and I believe that the degree of organization goes more or less parallel with the destruction of the endothelial layer of cells and the rapidity of its repair. Where the infection is light, the endothelium not much destroyed, and repair rapid, the fibrin is reabsorbed before organization can take place. In such cases the early fibrinous adhesions may disappear completely. On the other hand, if the infection be severe, the endothelium will largely be destroyed, exposing the sub-serous connective tissue; under such conditions organization is more apt to occur strongly with the result of firm adhesions which will never disappear. Sero-serous adhesions are light, as Greig Smith long ago pointed out; sero-fibrous, or fibro-fibrous adhesions are strong.

As a matter of clinical experience peritoneal infection will frequently not destroy endothelium to such an extent as to cause permanent adhesions; witness the cases in which re-laparotomy after general peritonitis shows the non-formation of adhesions such as one would have expected, or the confining of these adhesions to the area drained by tube or gauze, the rest of the cavity being free, although the peritonitis had been general. And again, those cases in which adhesions seen at one operation are found to have disappeared at a subsequent one.

Now, the adhesions caused by a foreign body are apt to be permanent; this I have had occasion to observe in the series of experiments mentioned in which my endeavour was to produce adhesions. In these experiments, when adhesions had been caused by sterile gauze, they were never found to have disappeared or even to have been modified by the lapse even of four or five months, and clinically we see the same thing. Where we have occasion to reopen a patient for an obstruction which has developed as the result of a general peritonitis which had been overcome years previously, we frequently find that the peritoneum is free of adhesions save in the neighbourhood of the old operation wound which had been drained by tube or gauze. I mention this because in my opinion it has a strong bearing upon the advisability of using drains in the peritoneum.

The danger of post-operative obstruction is no slight one. Of forty-seven cases of this condition observed in the Royal Victoria Hospital during the last ten years, more than one-third died.

Therefore, I conclude that the insertion of a drain in cases of general peritonitis, where the cause has been removed and the abdomen cleaned, is first, unnecessary; second, useless; and third, may be harmful.

It remains in a few words to state the results of my own operations for this condition. The principles above enunciated have been applied only in the last four or five cases, all of which have recovered. Twelve cases have been operated upon of which two were typhoid perforations. Both these, by the way, recovered. Of the 12, 3 have died—a recovery percentage of 75, and a mortality of 25 per cent. I am aware that such a small series cannot carry very great weight; but I believe that it indicates at least the direction in which progress is tending. I may add that of the three deaths one occurred after a week; at post mortem the peritoneum was found to have recovered to a very large extent, and this death was properly due to an acute miliary tuberculosis with a double tuberculous pneumonia and acute bronchitis.

I believe very strongly in the extrinsic aids, particularly enemata of saline, every two hours, or intravenous injections. The latter has seemed on more than one occasion to be the essential factor in saving life. I have made somewhat frequent use of eserine, employing the salicylate in doses of 1-60 to 1-40 of a grain; and it has nearly always yielded very definite results in the way of stimulating intestinal movements. While there may be some reason for objecting to early moving of the intestinal coils after operation for the less severe cases of general peritonitis, there can hardly be any doubt as to its necessity in bad instances of intestinal paresis, where advancing distension and persistent vomiting after the second day threaten a fatal issue. Such cases may sometimes be saved by an enterostomy; but also, I believe, by bold doses of eserine without the enterostomy.

The Fowler position I have used in a certain proportion of these cases, with one or two tubes to the pelvis. In these I could not see that more fluid was drained than when the patients were recumbent; in neither case did the drains drain. Nevertheless, I have continued to elevate considerably the head of the bed, because of the greater evident comfort to the patient; the diaphragm is relieved of pressure from distended bowel, and the heart and lungs are given freer play. Experiment has shown moreover, that the normally rapid flow of the peritoneal effusion to the diaphragm is retarded somewhat by the sitting posture, though by no means prevented, and the Fowler position is therefore an added aid to the prevention of toxic absorption.

A CASE OF MIDDLE MENINGEAL HÆMORRHAGE, WITH OPERATION AND RECOVERY.

BY

J. GUY W. JOHNSON, M.A., M.D.,

Cumpas, Mexico.

The patient was a little Mexican (three-quarter Indian) boy, about 5 or 6 years old. While playing with his younger brother, he tripped and fell, hitting the left side of his head. He got up, thinking nothing of it, and went on playing. About ten minutes later he came to his mother and complained of slight headache and not feeling well. The mother states that he became drowsy and vomited once, shortly after which he began to have convulsions, regaining consciousness between the attacks. She did not notice whether the convulsions were limited to one side or not. I saw him about an hour after the accident.

When first seen, the child was drowsy and did not answer when spoken to. On examination I could find no sign of a bruise anywhere. He moved both legs and arms equally. Babinski's sign was present on the right side, but not on the left. The right knee-jerk was exaggerated. Temperature 98.4°, pulse 100, regular, of good volume and tension. As the boy was having severe convulsions, which were entirely limited to the right side, beginning around the mouth and passing to the arm and then to the leg, I chloroformed him. The convulsions were of a clonic character. As soon as I would stop the chloroform he would go into another convulsion. Whilst under the influence of the anæsthetic I washed out his stomach and rectum. After about an hour and a half of intermittent chloroforming, the convulsions did not reappear; but the boy did not regain consciousness. On examining him, I was surprised to find that the right side of the body was flaccid and paralyzed, although he moved both his left arm and leg freely, when they were pricked with a pin. There was now complete absence of all reflexes on the right side, those on the left side seemed to be normal.

I made a diagnosis of rupture of the middle meningeal artery, and advised immediate operation. After considerable delay the parents consented. I commenced the operation about six hours after the accident; the patient was now comatose and required very little anæsthetic. His pulse was 105. I made a horseshoe-shaped incision, with its base downwards, on the left side of the head. Beginning the incision one-half an inch behind the outer angle of the eye, extending it up to the level of the parietal eminence and ending about one-half an inch

behind the ear, the flap thus having a base of one and one-half inches and a greatest diameter about two and one-half inches. I then raised the flap from the bone, having considerable difficulty with the temporal muscle. I then covered the flap with hot cloths, and trephined the skull, the center of the trephine being midway between the outer angle of the eye and the ear, and about one-half an inch above the line joining these two points. On removing the button of bone a good deal of blood rushed out. The dura mater had been separated from the skull for some distance all around the opening. There was very little attempt at clotting of the blood. On washing out the wound with 1 in 12000 bichloride, blood could be seen to come down from above in small gushes, showing that the bleeding was still going on. I could see no sign of fracture, although I probed around in search of one. The middle meningeal artery could be seen lying in the bottom of the trephine opening. With a needle I placed a catgut ligature around the artery, and on tieing it the blood immediately stopped flowing into the wound. After again washing out the wound I closed it with interrupted silk-worm sutures, leaving a small gauze drain in the lower anterior part of the wound.

The boy came out of the influence of the chloroform very slowly, but without vomiting. He moved his right leg very slightly. Next day when I went to see him I found him moving round in bed, using both arms and legs freely. The reflexes were equal on both sides. His speech was clear. The temperature was 99°, the pulse 90.

I removed the gauze drain and tightened the stitches that I had left in place. There was never any rise in temperature or pulse, and the boy made an uninterrupted recovery, the stitches being removed on the tenth day. I saw the boy about a month later and he was playing as if nothing had ever happened to him. The opening in the bone seems to be growing smaller. The points that I should like to draw attention to are the following:—

(1) The very slight injury, not even causing a bruise.

(2) The rapid onset of symptoms, especially the paralysis.

(3 The rapid recovery from the paralysis after operation.

W. H. Park experimented with typhoid bacilli in ice, using 21 strains. Not one bacillus was living after twenty-two weeks freezing, and less than 1 per cent. of the bacilli after five weeks, six of the cultures having been destroyed entirely. At the end of four weeks storage the ice is as free from typhoid bacilli as if the water had been subjected to sand filtration." (*Jour. A. M. A.*, August 31).

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THE NEW MEDICAL COLLEGE AT McGILL.

The board of assessors have finally declared in favour of the plans submitted by Messrs. Brown and Vallance, from among eight competing firms: the plans have lately been on view at the Redpath Library, and show a wide variation of design. The accepted plans are not in any sense final, but they represent a satisfactory grasp of the general idea of the Governors and the Faculty, both with regard to the building in itself, and its adaptation to the site chosen on Pine avenue, where the land has a slope in two directions, and presents somewhat of the same problem as was offered by the site on which now stands the Royal Victoria Hospital. The general estimate of cost is in the neighbourhood of half a million dollars. The central block will face the campus, and parallel wings will extend towards Pine avenue, one of these being on University street and

the other on or close to Carlton Road. There are many details of distribution of space yet to be decided, but presumably the plans indicate what will be the final idea as to external structure.

ARE SERUMS DANGEROUS?

In the columns of this number will be found some interesting material relative to the occurrence of death following the use of protective serum derived from equine sources; we know quite well the risk that there is, lest some zealous layman seize upon this as campaign-material against the use of antitoxic serums, for there are always protesting people who think that to be in the minority and to shriek are two arguments in favour of the faith they uphold. Disregarding this danger, we publish the dismal side of the story, in the interests of knowledge, and we beg to point out the relative importance or lack of importance of these lethal cases. Stated as a percentage they are so small as to be no argument against the use of serum: to argue against the use of serum on the grounds of this danger would be much less reasonable that it would be to discard anæsthesia because of its dangers. In one, as in the other, the choice of the lesser of two evils must win. This refers to its use as a curative agent; but in its prophylactic usage, the case will bear further argument. In the first place, it may be said that the prophylactic effect of diphtheria serum, for example, is not absolutely proven; in the second place, if the "sensitizing dose" be a correct idea, the use of antitoxin as a prophylactic measure, in a small dose, is merely sensitizing the patient against a future dose, if the disease be contracted, in return for the benefit of a probably less severe attack. Even here, however, the case against serum is not clear, because many hundreds of thousands of immunizing doses have been given and many hundreds of these patients have afterwards been given serum, without untoward results. To sum up, it may be dangerous to give an immunizing dose, but there is already vast practical experience that it is not.

As knowledge of the subject advanced, it became evident that the dangerous element was not the antitoxic principle, but the alien serum, and, as is pointed out in the papers here referred to, the reduction of bulk of serum thus reduces the danger, and in this regard, the most concentrated serums are the best because they provide a maximum of antitoxic principle with a minimum of alien serum; and further chemical studies have been made and are yet being made with a view to neutralizing the deleterious effects of the alien serum.

The physician, more than most others, has to pick his way among dangers, running near to the lesser ones that he may avoid the greater;

and because perfect remedies are not easy to find, and discoveries are slow to make, and time is required for the development of knowledge, we, of the present day, have often to grope in the twilight of insufficient knowledge as had our forefathers: and to sit down and do nothing, as our enemies the anti-vaccinationists and other shriekers would have us do, is to arrive at no end. We must, therefore, choose carefully and conscientiously what we judge to be the least dangerous course, and pursue it, knowing that he who will not walk on the sidewalk because he may be struck by a falling signboard, will probably be run over by a dray or killed by a street-car, if he take to the roadway.

THE GLORIFICATION OF THE UNESSENTIAL.

From the daily papers one may extract a few gleams of medical sunshine at times, and some day there will arise a collector of the comical in the shape of "germs of thoughtlessness" like this latest upon the eating of roller-process flour as a cause of appendicitis. Not long ago our editorial pen was stirred to activity by the exploitation of a certain intestinal worm as the cause of appendicitis, and we are loathe to launch out fully upon this subject again, but the idea of the rollers shedding their metal almost tempts us—and the time cannot be far off when we shall eat roller flour no longer as a food, but as a tonic; steel and quinine! the forests of Brazil and the wheat-lands of our north-west hand-in-hand to produce medicine, and flour-mill stocks dropping with panicky speed. When may we expect to see advertisements setting forth, "Our flour contains the highest percentage of iron per ton of any on the market," or, "Try our Steel-Flakes"?

This kind of etiology for diseases has not been sufficiently worked out, and is gone at in a method far too hap-hazard by the majority of those who employ it. The real method is this—take a dictionary, for example, the Century. Pages one and two are taken up with "a" in all its variations, and are obviously useless, but aardvark comes next, which suggests "gastritis caused by ingestion of aardvark meat," followed by "aba," which at once suggests "Aba as a protective for the skin of nephritics": not to leave this interesting vowel we see chances for the following: "Ecchymoses as a result of ablewhackets," "The abomasum and its pyloric relations," "Absinthe as an etiological factor in mumps," or, should the writer prefer "Absinthe as a cure of whooping cough" (it is one of the few remedies we have not seen suggested), to say nothing of "Abstergents, their use and abuse." Given a fair chance, much can be derived from a dictionary, and if all the nouns

be selected, a fair assemblage of articles can be found which might be eaten or drunk: why not each one of them as a cause of appendicitis? or any other disease?

Truly it seems, sometimes, as if the only claim that certain theories have upon attention, is that they have not been made before. In a few million years, all the permutations and convictions will have been exhausted, and the theorizer of that day will weep for new worlds to invade, if not to conquer; but one's patience even now is almost exhausted, and long before the supply is at an end, there will be a tax on the giving out of useless and unbased theories, and that will probably put a stop to it. The tendency to use the wrong end of the telescope on disease and its problems is widespread in the laboratories, too; there is far too much even in Germany of the "Estimation of the glycogen-content of the orbicularis muscle"—kind-of-arbeit. It may be said that all knowledge is of some use, but some particles of knowledge are so minute that they are not worth the time and trouble of any labouring man, who can use a spade, and sees mountains of ignorance on every side at which he can at least do his share of digging.

Therefore, we are bold enough to say that the view that appendicitis is caused by flour and the particles of metal therein is a foolish overlooking of many pertinent facts, and pouncing upon one small, unessential, even doubtful one.

The causation of appendicitis, at least, now rests upon a firm basis; it is explained in a reasonable way to the satisfaction of most of us, and even if the explanation be not absolutely true, it is sufficiently in keeping with the knowledge we now possess of disease in general that it may well be allowed to rest there, so long as our entire way of thinking upon these problems does not change. We seem to know, in a modest way, even now, a few general laws of disease, and we prefer to consider the etiology of appendicitis in the light of these general laws, and the man who attempts to bring in a striking exception to these laws may be ahead of his age, like the giants of science, but the chances are heavily against him. We shudder to think of what may be the next theory on appendicitis to be dealt with in these columns.

EXAMINATIONS FOR INSURANCE.

After the investigation by authority of the Legislature into the methods of Life Insurance Companies doing business in New York certain restrictions were made upon the expense which might be incurred in procuring new business. To comply with the law every item bearing

upon the first year's cost was scrutinized. Amongst them was the fee paid to medical examiners, which had been five dollars. The companies were obliged under the law to reduce the fee to three dollars for all examinations for policies of less than three thousand dollars.

Some opposition was made to the reduction, but in the main the examiners accepted the new schedule and continued to do their work faithfully. In some localities there was an organized opposition. Examiners were obliged to refuse the reduced fee and the companies restrained by the law were compelled to abandon those fields.

As the result of a year's trial one company, at least, the Mutual Life of New York, has found that all the economies practised have brought the expenses well within the limit. For next year it finds it possible to make a slightly enlarged expenditure. The medical examiners were the first to receive consideration and the fee has been increased to five dollars. At the time we counselled forbearance, on the ground that the companies were merely carrying out the law, and that the interests of the medical examiners were identical with those of the companies. Now, it is a pleasure to find that this confidence has been justified.

Reviews and Notices of Books.

DISEASES OF THE STOMACH. By DR. I. BOAS, Specialist in Gastro-enteric Disease in Berlin, Germany. The sole authorized English American edition from the latest German edition. By Albert Bernheim, M.D. (Freiburg, Germany), assistant to the late Dr. D. D. Stewart at the Philadelphia Polyclinic Hospital and Post-graduate School, and Instructor in the Department of Diseases of the Stomach and Intestines, etc., etc. Illustrated with five full-page plates and sixty-five engravings in the text. 730 Royal octavo pages. Extra cloth, $5.50 net. Half morocco, $7.00 net, Sold only by subscription. F. A. Davis Company, publishers, 1914-16 Cherry street, Philadelphia, Pa.

Boas' text-book upon diseases of the stomach scarcely needs an introduction to any one speciallly interested in the subject, as it is well known, having run through five editions in the thirteen years that followed its first appearance in 1890. By the present translations it is available to English readers, as it has been previously available to Russian, Italian and Spanish readers by translation to those languages. Even now a short description of the book's contents may be useful. It opens with forty pages upon the anatomy and physiology of the stomach,

including the chemistry of the secretions of digestion. The consideration of diseases of the stomach begins with a very full description of a proper history to be taken in a stomach case, together with methods of examination of the patient. A novel and not very widely known instrument is the algesimeter of the author, which is a kind of piston which transmits pressure to various sized plates, and registers the amount of pressure required to produce pain. The gastroscope meets with praise, but it is allowed that a high degree of skill is necessary for its proper employment. With the Rontgen-ray examination, are several good skiagrams of bismuth-food at varying times after ingestion.

One hundred and twenty-five pages are devoted to chemical examination of the stomach contents and as might be expected, the editorial additions here are not numerous, as the descriptions are most exhaustive. We notice that the author states that he considers the bacillus long ago described by him, generally known as "Oppler-Boas" bacillus, to be the lactic acid bacillus, and to be considered characteristic only when it overwhelms the field. The plates which illustrate particles of gastric mucosa from personal observation are very interesting, but their very perfection suggests that a very wide experience has been necessary for the finding of such definite pictures. The chapter on examination of the urine and its significance in diseases of the stomach, is rather concerned with suggestions for future advances than with detail of actual useful tests. Of blood tests, the same may be said. Then follow seven chapters, totalling a hundred pages or more, upon general therapeutics. In speaking of diet, Professor Boas says that we are, perhaps, too lavishly governed by the calculation of calories, but says, in italics, that "every physician who treats chronic diseases, yes, any physician at all, should in my opinion possess a precise weighing apparatus!" a dictum which will find many of us wanting in the balances. The statement of exact diet is admittedly a very difficult one for the physician, and the author cautions against printed diet slips which entirely minimise the individuality of the physician's orders. "General prohibitions, (e.g. the well-known advice to eat nothing acid, fat or spicy) are worthless." To begin with, the physician must know the exact amount of which the average healthy stomach can dispose: pages 288 to 292 contain some very useful information in general upon diet in various common derangements. The most common and popular artificial foods are classified, and their ingredients stated. When speaking of rectal feeding. Boas says "Rectal feeding in cases of gastric ulcer should be the last refuge, and only if the diagnosis is absolutely sure." The editor adds after the word "refuge" the interpola-

tion "if operation is denied" which seems to us a real Americanism of 1907. Mineral waters, electrical treatment, and gastric lavage are dealt with, and with regard to the latter, a protest is entered against "aimless experimenting" with it. An appendix on surgical treatment is added after acids, alkalines, stomachics and prepared ferments have been discussed. We agree here with some of the editorial remarks very heartily, for stomach surgery has run a little wild in America of late years: the appendix closes with this comment, "the highest task of therapeutics does not consist in inventing new operations, but in making them dispensable." Part II consists of the consideration of special diseases, gastritis, ulcer, motor insufficiency, displacement, cancer, syphilis, tuberculosis and the neuroses. This is almost half the entire volume, and many times occur points of great interest upon which lack of space prevents our dwelling. Syphilis and tuberculosis are interesting chiefly by their rarity. On the whole, the editor is to be congratulated on bringing this book into the hands of many who will find it of great advantage. Dr. Boas speaks with much personal prejudice (to use the word in its good sense) on many questions, and no one will deny his right to do so: the book gains value thereby: many of his most striking dicta are italicised, and at times the text bears the mark of its verity in its German construction; this again, is by no means a disadvantage, for it adds a personal element that is often entirely missing in a translation. The text is clear, the bibliography is generous, especially, of course, in German lines, and is added at the bottom of the page, and an adequate index is provided.

THE PRACTICE OF OBSTETRICS. By American authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics in the Long Island College Hospital, Brooklyn, N.Y. In one handsome octavo volume of 786 pages with 445 engravings in black and colours and 36 full-page coloured plates. Cloth, $5.00 net; leather, $6.00 net; half morocco, $6.50 net. Lea Brothers & Co., New York and Philadelphia.

The third edition of the "Practice of Obstetrics," by American authors, published by Lea Brothers & Co., which has just made its appearance, revised and enlarged, is evidence of the popularity of the work. Works of composite authorship rarely appear in successive editions, hence this is a notable exception.

In this third edition several subjects have been wholly re-written, notably those on "The Changes in the Maternal Organs During Pregnancy," "The Duration of Pregnancy," "The Hygiene and Man-

agement of Pregnancies," "The Anomalies and Diseases of the Foetal Appendages," and "The Diseases of Pregnancy," all of which have been contributed by Dr. W. S. Stone. The section on "Symphysiotomy" has been condensed, and the newer operations of "Hebotomy" and of "Vaginal Cæsarean Section" are described.

On the whole the work, already excellent, has been improved, and the third edition will no doubt prove quite as popular as its predecessors. The work is to be recommended as one of the very best of the recent American obstetrical books.

Diseases of the Intestines and Peritoneum. By Professor Dr. Hermann Nothnagel, late Professor of Special Pathology and Therapy, University of Vienna. Edited, with additions, by H. D. Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital, and to the Victoria Hospital for Children, London; Sometime Fellow of St. John's College, Cambridge. Second edition, thoroughly revised. Authorized translation from the German under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1907. Price, cloth, $5.00 net; sheep or half-morocco, $6.50 net.

This is the second edition of this work, the previous edition having appeared three years ago; the changes introduced in the present volume consist chiefly of additions to the editorial comment, for Dr. Rolleston is a very painstaking and conscientious editor of whatever work he undertakes; and the addenda are brought well up to date.

The book covers so wide a field and contains so much aggregated material that we find it difficult to discuss it at length; in any of the several hundred conditions discussed, the reader will find a fair statement of our present knowledge of the disease dealt with. For example, the chapter on appendicitis represents a vast amount of material and research, and it is well handled when one considers the bulk of it; we are glad to see that in the vexed subject of etiology the author, and perhaps even in a greater degree, the editor, indicates the direction that is safest to take—viz.: that the mechanical effects of lack of drainage, assisted by the irritation of concretions are the most potent factors; that cœcal inflammation may well be the original point of departure, and that the various fanciful sources that have been from time to time exploited, are efficient in a very small number of cases. This chapter is but used as a test-case, to indicate the sanity of view that pervades the entire work; and at the same time to indicate that no reasonable

work of importance upon the subject has been overlooked. This volume does not need our approbation, but we are glad to give it; and we beg to point out that no small share of its success is due to good editorial work, for we can assure any reader who does not already know, that Dr. Rolleston has perhaps as wide a knowledge of American medical literature as is possessed by any English physician; and in his hands, deserving work on this side of the world meets its due.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker, and Dr. J. Trumpp, of Munich. Edited, with additions, by Isaac A. Abt, M.D., Assistant Professor of the Diseases of Children in Rush Medical College. With 48 coloured plates, 147 black and white illustrations, and 453 pages of text. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $5.00 net.

This is a good book, and its excellence lies in no small degree in well selected illustrations, so that the 453 pages of text does not make so formidable a mass of reading as one might at first expect. The text is pointed, direct, and appears to be perfectly sound in its general treatment of the subject. Practically all the diseases by which children are afflicted, are taken up and the volume is thus a very good practical adjunct to any practicing physician's library.

There are, it is true, a few illustrations that are unnecessary, but this is out of a large number: the only purpose served by that on page 54, "introduction of a thermometer in the rectum of an infant" seems to be to show that the brass-capped end of the thermometer is not the end to be inserted; and on page 56, in the illustration of "inspection of the oral cavity of a small child" there is at least the virtue that the pleased expression on the child's face shows that, in skilful hands, the process may become as indispensable to babies as a certain much advertised laxative. But speaking without levity, the coloured plates of measles and scarlet fever just miss being the exact thing, although it is doubtless extremely difficult to portray these accurately. On the other hand, tracheotomy, melaena, dyspeptic stools, and the histological plates, to select no others, are worthy of the best praise. The writer sees for the first time the word colicystitis to designate a cystitis in which the infection is bacillus coli. This term should be put out of use at once, for it can lead only to confusion with cholecystitis, and it is a very late second in the field. As in this whole series, the histological plates are excellent, and one could wish there were more of them; although we well recognize that the price of the book is due somewhat to the cost of reproduction of the coloured plates, and their increase would but mean a more costly volume.

Treatment is stated in a succinct way that is very pleasing, and withal, complete. The editor's comments are timely, and useful. It is a pleasure to recommend the book.

THE AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. NEWMAN DORLAND, M.D., editor "The American Illustrated Medical Dictionary. Fifth Revised Edition. 32mo of 574 pages. Philadelphia and London. W. B. Saunders Company, 1906. Flexible morocco, gold edges, $1.00 net; thumb indexed, $1.25 net.

The fifth edition of Dr. Dorland's Pocket Medical Dictonary is a very comprehensive little volume of small size and much information. It contains definitions, pronounciations, and a mass of most useful material in tables. Of the latter there are sixty: may we suggest that a useful sixty-first would be a table of the antidotes to the common poisons? The volume will be found very useful.

A LABORATORY MANUAL OF INVERTEBATE ZOOLOGY. By GILMAN A. DREW, Ph.D., Professor of Biology at the University of Maine, with the aid of members of the Zoological Staff of Instructors of the Marine Biological Laboratory, Wood's Holl, Mass., Philadelphia and London. W. B. Saunders Company, 1907. Canadian agents, J. A. Carveth & Co., Toronto, Ont. Price $1.25.

This is essentially a working text book for the laboratory, and as such its medical scope is very limited; it gives dissection directions for the study of type specimens of the different genera, and these it gives in a brief, terse way. Most, or all of the commoner parasites are so dealt with, from their zoological side. The author observes in the preface that while this type method of teaching widely prevails, care has to be taken to keep the student from making everthing conform to type: this obseration, we think, has a wide application in many other departments. A useful glossary of terms and an index accompany the text.

Medical News.

CANADIAN MEDICAL ASSOCIATION MEETING.

The following is a partial provisional programme of the meetings to be held on September 11th to 14th, in this city.

Presidential address, Dr. A. McPhedran, Toronto; Address in Medicine, Dr. H. D. Rolleston, London, England; Address in Surgery, Dr. Ingersoll Olmsted, Hamilton, Ont.; Address in Pathology, Dr. J.

George Adami, Montreal, Twins, Double Monsters and some other Topics; Discussion in Medicine, Cerebro-spinal Meningitis, introduced by Dr. J. J. Mackenzie, Toronto; Dr. H. A. Lafleur, Montreal; Dr. A. D. Blackader, Montreal; Discussion in Surgery, Hypertrophy of the Prostate; Etiology and Pathology, Dr. G. E. Armstrong, Montreal; Symptomatology and Diagnosis, Dr. F. N. G. Starr, Toronto; Treatment, non-surgical, Mr. I. H. Cameron, Toronto; Treatment, operative, Dr. James Bell, Montreal; Section of Laboratory Workers, Dr. G. W. Ross, Toronto; Dr. Gibson, Kingston; Dr. Rankin, Montreal, have promised papers reporting work on Opsonins; Dr. J. J. Mackenzie, Toronto, Generalized Blastomycosis; Dr. Campbell Howard, Montreal, A Study of the Eosinophile cells of the blood; Dr. McKee, Montreal, On Retinitis Pigmentosa; Dr. E. C. Dickson, Toronto, On the Significance of the Glomerular Changes in the Kidney; Dr. J. McCrae, Montreal and Dr. Klotz, Montreal, The Necroses in the Liver in Eclampsia and other Diseases; Dr. Tooke, Montreal, On Injuries of the Cornea.

OTHER PAPERS.

Listerism, Dr. A. H. Wright, Toronto.

Seven Hundred and Fifty Abdominal Sections and the Lessons they have taught me, Dr. A. Lapthorn Smith, Montreal.

A Case of Primary Bilateral Mastoiditis, Dr. Perry G. Goldsmith, Toronto.

Gonorrhœal Metastatic affections of the optic nerve and retina, Dr. Gordon Byers, Montreal.

Notes on Tubercle Bacilli Isolated from Fatal Cases of Primary Cervical Tubercular Adenitis, Dr. Duval, Montreal.

Bacteræmia, Its Diagnosis and its Diagnostic and Prognostic Value, Dr. Fraser Gurd, Montreal.

Cancer of the Breast, Dr. George E. Armstrong, Montreal.

Modern Methods in Diagnosis of Tuberculosis of the Kidney, Dr. R. P. Campbell, Montreal.

The Clinical Side of Ectopic Pregnancy, Dr. W. W. Chipman, Montreal.

Danger Signals in Anæsthesia, Dr. Samuel Johnston, Toronto.

Psychology of the Sick Room, Dr. John Hunter, Toronto.

Paresis: Certain Features in Regard to the Etiology and Differential Diagnosis, Dr. John G. Fitzgerald, Toronto.

The Normal Temperature, Dr. R. D. Rudolf, Toronto.

The rights of Children, Dr. C. J. C. O. Hastings, Toronto.

The Defensive Action of Products of Metabolism, Dr. Graham Chambers, Toronto.

Treatment of Neurasthenia, Dr. E. C. Burson, Toronto.

Papers are also expected from the following: Dr. Connell, Kingston; Dr. Keenan, Montreal; Professor Harrison, St. Anne de Bellevue; Dr. A. W. Moody, Winnipeg; Dr. W. F. Hamilton, Montreal; Dr. F. G. Finley, Montreal; Dr. C. F. Martin, Montreal; Dr. Colin Russell, Montreal; Dr. Campbell P. Howard, Montreal; Dr. A. G. Nicholls, Montreal; Dr. Ridley Mackenzie, Montreal; Drs. Lyman and D. A. Shirres, Montreal; Dr. B. W. D. Gillies, Vancouver; Dr. A. H. Gordon, Montreal; and from Drs. Lowrey, H. B. Anderson, H. C. Parsons, W. B. Thistle, R. J. Dwyer and A. R. Gordon, Toronto, and Geo. T. McKeough, Chatham, Ont.

When and How to Resume Normal Feeding in Convalescence from Typhoid Fever, Dr. J. T. Fotheringham, Toronto.

Dr. Maud E. Abbott, Montreal, will present an exhibition of Pathological Specimens from the McGill Medical Museum, illustrating the Circulatory System.

Professor J. J. Mackenzie, Toronto, will also exhibit Pathological Specimens.

Dr. Robert Wilson, Montreal, will give an Exhibition of X-ray plates from the different hospitals.

The Occurrence of Congenital Adhesions in the Left Common Iliac Vein, Dr. J. Playfair McMurrich, Toronto.

Sigmoiditis and Diverticulitis of the Rectum, Dr. D. A. L. Graham, Toronto.

Ample accommodation has been provided in the Arts Building, Peter Redpath Museum, the Physics building and the McGill Union. The Lecture halls are provided with lanterns, and it is hoped papers will be illustrated by this means. Interesting clinical material will be shown at the Royal Victoria Hospital, and Montreal General Hospital on the mornings of the meetings at 8.30.

DR. J. L. TODD'S RETURN.

After several years of valuable work in connection with the Liverpool School of Tropical Medicine, Dr. J. L. Todd, of this city, until recently the Director of the Tropical Research Laboratories at Runcorn, has resolved to return to Montreal.

In the current number of *Canada* the description of a farewell dinner given to him at Liverpool, is reported as follows:

The dinner was given by Sir Alfred L. Jones, president and founder of the Liverpool School of Tropical Medicine. The company included

many distinguished men, including Col. Bruce, Sir Rubert Boyce, F.R.S., Professor Ross, and Professor Carter.

In proposing the health of Dr. Todd, the chairman said they bade a sad farewell to him. Dr. Todd, who had been with them four or five years, did not come to make money, because he spent a great deal more than he got, and had done a great deal more in connection with the school than any one else.

Sir Rubert Boyce supported the toast, remarking that Dr. Todd was a splendid example of an Imperial student. Not only had he given of his time and talents, but also his money. Although Dr. Todd was present, he (Sir Rubert) could not refrain from saying that the doctor had given to their Tropical School something like $1,000 a year, and had risked his life in the interests of the school. He had particularly given money to found the research laboratories at Runcorn, where the best scientific work was carried on under and by Dr. Todd, and where the highest scientists in the world desired to study. It was largely due to the splendid work of Dr. Todd that they had discovered a preventive for that dread malady, sleeping sickness. He trusted that Sir Alfred Jones, with his great capacity for getting over all kinds of difficulties, would find a means of bringing Dr. Todd back again to them from Canada. (Loud applause).

Dr. Todd, who was enthusiastically received on rising to acknowledge the compliments paid to him, was educated at McGill University, where he took the degree of B.A., M.D., and C.M. Coming to Liverpool he, in 1902, took part in the expedition to Senegambia to investigate malaria, and subsequently studied sleeping sickness in the Congo in 1903-1904. Amongst the publications of the Liverpool School of Tropical Medicine, which sent out the expeditions, are many interesting reports from Dr. Todd's pen, notably on malaria and sleeping sickness, as well as tick-fever in the eastern part of the Congo Free State.

CANADIAN MEDICAL ASSOCIATION 40TH ANNUAL MEETING.

Montreal Meeting, 1907—September 11th, 12th, 13th and 14th.

N.B.—Purchase Single First-Class ticket to Montreal, and get at the same time, from ticket agent, Standard Convention Certificate. No certificate required from General Secretary.

When it is remembered that over 800 Canadian physicians registered the first day of the British Medical Association meeting in Toronto last

year, surely it is not too much to expect that at least Three Hundred will journey this year to Montreal to the Fortieth Annual Meeting of their own National Medical organization. If three hundred are present with Standard Convention Certificates all will be returned home free. The Standard Certificate plan prevails in every province, no one requiring any certificate from the General Secretary. This means that all delegates, on purchasing single first-class tickets to Montreal, for themselves, their wives and their daughters (no others) should ask for and get, at the same time, a Standard Convention Certificate, from the ticket agent for each. These, when signed by the General Secretary at the meeting will entitle holder thereof to reduced transportation, which in all cases must be arranged for at Montreal. If three hundred are present holding these certificates, all will be returned home free; one-third fare if fifty are present with certificates. The Canadian Pacific Railway, the Grand Trunk Railway, the Intercolonial Railway, all lines in the Eastern Canadian Passenger Association and the Richelieu and Ontario Navigation Company and Canadian Northern Railway, are included in the transportation arrangements. Delegates from points west of Fort William will be permitted to use the Upper Lake Route, Fort William to Owen Sound, or *vice versa,* on extra payment of $4.25 one way, or $8.50 both ways, when travelling on the Standard Certificate Plan. Passengers going by rail, returning Richelieu and Ontario Navigation Company, or *vice versa,* rate to be one and one-half fare. Tickets will also be honoured via R. and O. Nav. Co, on presentation of rail excursion ticket to the ticket agent at Toronto, or to the purser on board steamer and payment of the following arbitraries, viz., $6.65, Toronto to Montreal; $3.50, Kingston to Montreal. Those desiring to tour should consult with their local railway agents as to tourist tickets.

DATES OF SALE OF TICKETS, TIME LIMITS, ETC.

Tickets will be on sale in the Eastern Canadian Passenger Association territory—Port Arthur to Halifax—three days before the first day, Sunday not counted a day, and final return limit three days after the last day. From British Columbia points tickets will be sold and certificates issued on September 1st and 2nd, and validated certificates honoured for return tickets up to and including October 9th. Tickets good for continuous passage only in each direction. West of Port Arthur and Fort William, the selling dates are September 5th, 6th, 7th and 8th. From stations west of Winnipeg tickets to be good going *via* trains that will connect with those leaving Winnipeg the

before-mentioned dates; certificates to be honoured at Montreal up to and including October 11th.

PLACE OF MEETING IN MONTREAL.

The meeting place will be the McGill University Buildings. The general meetings will be held in Molson Hall, the Medical Section in the lecture-room of the Redpath Museum, and the Surgical and Pathological Sections in the lecture-rooms of the Arts Building.

CERTIFICATE FEE.

The railway officer at Montreal, when exchanging Standard Convention Certificate for return transportation, will collect from each, for viséing the same, a fee of twenty-five cents.

HOTEL ACCOMMODATION.

Delegates desiring to have hotel or lodgings reserved for them should apply to the Local Secretary, Dr. Ridley Mackenzie, 192 Peel Street, Montreal.

MEMBERSHIP.

The fee for membership is $2.00 and may be paid to the Treasurer, Dr. H. Beaumont Small, Ottawa, at time of registering. For the information of those who will apply for membership for the first time, the same transportation rates apply to them as well, and they are requested to ask for *Application for Membership* forms when registering.

THE SOCIAL SIDE AT MONTREAL.

There is to be a garden party at Terrace Bank through the kindness of Dr. and Mrs. Roddick, a smoking concert in the Victoria Armoury, a reception after the President's Address the first evening, in the Students' Union Building, a drive and luncheon at the Hunt Club for the ladies, golf matches, etc.

CANADIAN MEDICAL PROTECTIVE ASSOCIATION.

During the meeting of the Canadian Medical Association, as usual, the annual meeting of the Canadian Medical Protective Association will take place. Dr. R. W. Powell, Ottawa, the President of the C. M. P. A., will deliver the annual address and present the annual report.

MILITARY SURGEONS.

There will also be a meeting of Canadian Military Surgeons, an organization which the Director-General of the Army Medical Service, Lieutenant-Colonel Carleton Jones, M.D., is promoting.

RE-ORGANIZATION.

Full discussion will take place on the report of the Special Committee on Re-organization. For this reason alone there should be a large and representative delegation from each province.

ADDITIONAL INFORMATION.

Additional information of a local character may be obtained from the Local Secretary, Dr. Ridley Mackenzie, 192 Peel Street, Montreal; any general information from the General Secretary, Dr. George Elliott, 203 Beverley Street, Toronto.

W. Pepper and V. Nisbet, Philadelphia (*Journal A. M. A.*, August 3), gives the history of a rather puzzling case of hæmorrhagic diseases in which direct arteriovenous transfusion was performed on two separate occasions, of which the second was followed by a fatal result. On the first occasion the blood (wife's) was allowed to transfuse for a little more than an hour and a half, and the patient, who had apparently been rapidly sinking, showed marked improvement. There was a slight suggestion of hemolysis in discoloration and uroblin, in the urine, but this had nearly disappeared when the second arteriovenous anastomosis was made with another person (brother-in-law) two days later. After the second transfusion the condition changed rapidly for the worse, there was marked evidence of hemolysis, bloody urine, jaundice, high temperature, etc., the patient failed rapidly and died within five days. Full details of the blood count are given. The impression is given that possibly the first transfusion may in some manner have caused the formation of hemolytic bodies that, after the second transfusion, found abundance of vulnerable corpuscles, on which to work. The authors do not venture any positive opinion, however, as to the rôle of the second transfusions, but remark that no bad effects were noticed by Crile, in a second transfusion from two brothers in one case, and that laboratory studies undertaken since their experiences have thrown no light on the matter. They recall the fact in the history of the case that an injection of diphtheria antitoxin had been given the patient some days prior to the first transfusion, since the studies of Theobald Smith, Rosenau, and others have indicated possibilities of danger in secondary injections. The conditions in this case, however, were not parallel. While Crile and others have shown the probable safety of transfusion in post-hæmorrhagic conditions, the authors think this experience indicates a danger in certain pathologic conditions and suggests caution until we are in possession of greater knowledge. Nevertheless the possibility of benefit, they say, may justify transfusion in apparently desperate cases.

The August 17 issue of *The Journal A. M. A.* is the annual educational number which gives a comprehensive survey of the field of medical education in the United States, including a brief description of each medical college and elaborate tables giving medical school statistics. During the past year large sums of money have been given to medical education, and many new buildings, laboratories and hospitals have been built. There have been marked advances in medical education. Forty-four medical colleges have adopted resolutions to raise their entrance requirements to include one or more years of work in a college of arts. Twenty-one of these will require two years of university work. Three state examining boards, Minnesota, North Dakota and Connecticut, have secured laws raising the standard of preliminary education respectively to two years, two years and one year of work in a liberal arts college in addition to the usual four-year high school education. For the session of 1906-7 there were 24,276 medical students, a decrease since 1905-6 of 926, or 3.7 per cent. Regular students decreased 3.5 per cent., homœopathic students decreased 4.2 per cent., eclectic students decreased 15.4 per cent., and physio-medical students decreased 11.8 per cent. The total number of graduates in 1907 was 4,980, a decrease since 1906 of 384, or 7.2 per cent. Regular graduates decreased 5.2 per cent., homœopathic graduates decreased 21.3 per cent., eclectic graduates decreased 34.9 per cent., and physio-medical graduates decreased 77.3 per cent. There were 903, or 18 per cent. of the 1907 graduates in medicine who also held baccalaureate degrees. Without including the graduates of 1907, there are now in the United States one physician to every 636 persons. The total number of medical colleges remains 161, the five colleges ceasing to exist being replaced by five new schools. Colleges are gradually lengthening their sessions; now 102 have sessions of over thirty weeks of actual work, where there were only 86 so reported last year. Of the 152 colleges which give the full four-years course in medicine, 97 are located in cities of 100,000 or more population. There are still 9 colleges having 220 graduates this year, which are located in cities of 10,000 and less population. There are seven medical colleges which teach only the first two years of the medical course.

The first meeting of the Council of the newly formed United Services Medical Society was held on May 30th.

It was decided that meetings be held at the Royal Army Medical College at 8.30 p.m. on the second Thursday in each month, commencing

on October 10th, 1907; that the annual subscription be 5s., payable in advance; and that a notification of the formation of the Society, accompanied by an invitation to join, be sent to all medical officers on the active lists and to those of the retired lists whose addresses can be discovered. Should any medical officer on the active or retired list of the Navy, the British and Indian Armies, or the Auxiliary and Colonial Forces not receive an invitation the council hope that, if desirous of joining the society, he will communicate with one of the Honorary Secretaries, Fleet Surgeon W. W. Pryn, R.N., "Tredown," 25 Idmiston Road, West Norwood, S.E.; or, Lieut.-Col. C. H. Melville, R.A.M.C., Royal United Service Institution, Whitehall, S.W.

The medical men of the interior districts of British Columbia have formed an association for mutual protection and co-operation, following out their announced intention of two weeks ago.

Dr. E. C. Arthur, of Nelson, was elected president, and Dr. A. Sutherland, of Revelstoke, secretary of the new association.

The object of the association is: "To further the interest of the medical profession in the interior of British Columbia by meeting for discussion of medical subjects, and to increase the protection to the public." Incidentally, one object is to secure for the profession in the interior representation on the medical council of the province.

At a reorganization meeting of the Cape Breton Medical Society, the following were the officers elected; President, H. E. Kendall; Secretary-Treasurer, Jas. Bruce; Vice-Presidents, M. D. Morrison, Glace Bay; R. C. McLeod, North Sydney; D. K. McIntyre, Sydney. Committees—Surgery: R. A. H. McKeen, J. J. Roy, L. Johnstone; Medicine: W. J. Egan, J. K. McLeod, T. Smith; Obstetrics: E. O. McDonald, J. W. McLean, F. O'Neil; Public Health: Wm. McKay, E. J. Johnstone, M. T. McLean; Special: Wm. McK. McLeod, J. A. McLellan, S. J. McLennan.

Side by side with the announcement in Hamilton of efforts to form an anti-vaccination league comes the statement from Dr. C. A. Hodgetts, secretary of the Provincial Board of Health, that 95 per cent. of cases of smallpox reported to the board were in unvaccinated cases; of 25 cases in hospital in Toronto, only two were vaccinated persons, one of whom, a physician, had not been revaccinated since early years

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At the eighth annual convention of the British Columbia Medical Association at Victoria, the following officers were elected for the

ensuing year: President, Dr. J. M. Pearson, of Vancouver; Vice-President, Dr. Corsan, of Fernie; Secretary, Dr. R. Elden Walker, of New Westminster; Treasurer, Dr. J. D. Helmcken, of Victoria.

It has been decided that the Dominion Government, through its Port physicians, will assume control of such lepers as are found on the west coast and transport them to Darcy Island, whence foreign cases will be deported. Such cases were formerly under the charge of municipalities.

Dr. R. A. Reeve, of Toronto, has been elected a life vice-president of the British Medical Association in recognition of his services as president.

The Alberta Government is creating a Provincial Board of Health, and has decided to copy the constitution and methods of the Ontario Board.

Dr. Wm. Workman, Assistant Medical Superintendent of the Hospital for the Insane at New Westminster has resigned.

Dr. Fitzgerald Sutherland of Norwich, Ont., died on the 26th July, in his 76th year. He was born in Scotland, graduated at Toronto, and practiced in Kincardine and Norwich, being thirty-three years in active work at the latter.

Dr. James Brien, ex-M.P., died on August 10th, at Essex, Ont. He was a graduate of Queen's University, Kingston, in 1872, and practised at Ridgetown, and afterwards Essex for many years.

Dr. Joseph Leduc died suddenly at Dorion, Que., on August 11th.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

E. W. Roughton, B.S. London., F.R.C.S. Eng. "Two Cases of Excision of Ruptured Spleen. *Lancet*, June 22, 1907.

Both cases were in female children, the first was run over by a light van, the other fell on her abdomen against a curb-stone. In the former

the symptoms were marked from the first, there being marked collapse, restlessness, a pulse of 120, abdominal wall hard and moving little on respiration. In the latter, it was 12 hours before there was evidence of any serious injury, when the pulse became accelerated and the abdomen was distended and rigid and especially tender to the right of the umbilicus. Laparotomy was performed in both, the one with the acute onset showed laceration and pulping of the spleen, the other two fissures on the diaphragmatic surface, one just below the middle extending completely across the organ and a much smaller one at the upper pole. Excision was performed in both cases with success. The peritoneal cavity was washed out with saline solution, some of which was left in, and intravenous injection was employed in both cases. Blood examinations were made by W. d'Este Emery, extending over a period of three years, during which the patient remained in perfect health and underwent the normal physiological growth of this period. The absence of the spleen did not appear to influence the blood counts from those in an ordinary healthy child about puberty. Those counts immediately following the operation gave the same general results as are found after any operation in which hæmorrhage is a feature. Both cases are now three years after operation, in perfect health; the first has some enlargement of the glands in the axillæ, groin, and both sides of the neck.

Cuthbert Wallace, M.B., B.S. Lond., F.R.C.S. Eng. "Diabetic Gangrene." *Practitioner,* July, 1907.

This article is one of twenty dealing with the subject of diabetes in general appearing in the present volume. A very good clinical picture is given of the onset and progress of this special form of gangrene, and the general lines of treatment advocated are those now applied in cases of senile gangrene. These may be palliative or radical. If the dorsum of the part is involved the only treatment is amputation above the knee as recommended by Jonathan Hutchison. So long as the gangrene remains dry, as it does until the more fleshy part of a limb is involved, the condition is not grave, but when it has become moist and septic absorption once begun we are dealing with a very serious condition. In such cases ablation of the entire limb may be called for. The diminution or disappearance of the sugar, after the removal of the limb, and the septic absorption produced by it, is a remarkable feature in a certain number of cases, and suggests that the glycosuria may itself depend upon, or be aggravated by, the septic lesion. Septic conditions in non-diabetics sometimes produce glycosuria, and it has been shown that a patient with active septic absorption cannot dispose of as much glucose at a meal as

a healthy individual, which would seem to support the above conclusion, as well as being an indication to operate rather than the opposite.

W. L. B.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

DIABETES. *The Practitioner* (London).

The July number of *The Practitioner* is termed "Special Diabetes Number," as fully one hundred and sixty pages are devoted to a brief but withal comprehensive discussion of many phases of the important subject of Diabetes. One finds among the names of those who contribute to the discussion. W. D. Halliburton, J. Rose Bradford, I. Walker Hall, Sir Lauder Brunton, Malcolm Morris and R. T. Williamson—household names in medicine. These, with the names of others, speak for the high order of the matter contributed and their papers bring together the results of specialists and thus "reflect the exact state of contemporary knowledge and opinion."

Halliburton reviews the teaching on carbohydrate metabolism and discusses the two chief theories as to the destination of liver glycogen, which may be formed even while the animal is on a purely *pro tem* diet—and which is increased by glycerin and ammonium carbonate. These two theories are: (1) that the glycogen is converted during life by the agency of a ferment into sugar, that this leaves the liver of the hepatic veins and is thus distributed for utilization in the tissues; (2) that glycogen never justifies its name, but is transformed into substances other than sugar. Between these extreme views the opinion prevalent among physiologists is of the nature of a compromise. Halliburton says that the liver is no doubt able to convert part of its glycogen into fat, but most of its glycogen is regarded as leaving the liver as sugar (dextrose). The kind of sugar leading to an increase of hepatic glycogen is *par excellence* dextrose, and those belonging to the monosaccharide family, of which tarvulose is the next in importance to dextrose.

An upset of this glycogenic function is the common cause of diabetes, and consists in either an increased formation of sugar from glycogen or to a diminished formation of glycogen from the sugar of the portal vein. "The organism certainly is unable to burn, that is to utilize sugar."

But diabetes is not a single disease as it can be produced in animals by many and diverse experimental methods. The forms this induced differ from one another in some important points.

In puncture diabetes as well as in alimentary glycosuria there is no fundamental disturbance of the power of the organism to burn sugar. It is a diminution or over-straining of the sugar-holding capacity of certain organs.

While admitting that the profession is still in the dark regarding the exact *modus operandi* or how it is that the pancreas influences the metabolic processes. Halliburton's discussion of diabetes after exterpation of the pancreas shows that (1) it is not the loss of the pancreatic juice in the intestines (Minkowski); (2) nor is the glycolysis accomplished in the blood by pancreatic internal secretion (Lepine) and indicates that most subsequent observers fail to support the view expressed by Otto Cohnheim, (3) that the internal secretion already mentioned stimulates the glycolytic action of the tissue cells. It is suggested that the tissue cells are unable to fully perform their functions and are defective in the direction of oxidative processes. They may not be able to prepare the sugar for oxidation.

In Phloridzin-diabetes there is no increase of sugar in the blood; and after all the carbohydrates in the body has been got rid of the dextrose nitrogen ratio persists, proving that the origin of the sugar is exclusively protein. (Graham Luck).

Body fat may arise from carbohydrate food, and fat may be converted into carbohydrate as seen in vegetable life and also by direct inference this is true in animal life (glycosuria intensified by feeding phloridzin animals on fat). Glycosuria is increased by ammonium carbonate administration (increasing the fat changing function of the liver). To explain these processes chemically showing how the long carbon chains of the fats are linked together from the shorter chains of sugar or how these carbon chains of fats are burnt up is almost a matter of guess work.

A study of acetonuria has helped in solving this problem. Acetonuria is common to a variety of conditions—starvation, febrile conditions, mountain sickness and sometimes in broncho-pneumonia, pernicious vomiting in pregnancy, in recurrent vomiting in children, sometimes as a result of late chloroform vomiting.

In W. Langdon Brown's article on Acetonuria we find the following recapitulation:—"Acetonuria is the result of increased metabolism of fat occurring in any starving tissue, but it is particularly apt to occur if oxidation is deficient, because then the final breaking down of the fat into water and CO_2 does not take place. Deprivation or non-utilization of carbohydrates is specially likely to cause acetonuria, both because the tissues are being starved and because the process of oxidation

is apparently closely connected with the carbohydrates. If the increased metabolism of fat is great enough to cause acid intoxication the condition becomes much more serious. The liver is unable to convert ammonia salts into urea. The diminished alkalinity of the blood renders it incapable of taking up as much CO_2. CO_2 is therefore retained in the tissues and internal asphyxiation results.

A wasting diabetic is being starved as he cannot use his carbohydrates. Fats are broken down and fatty acids result, yielding diacetic-acid and acetone, of which β-oxybutyric acid is the forerunner.

And acidosis may increase the wasting for autolysis proceeds faster in acid than in alkali media. Breaking down of fasting or oxygen-starved tissues produces acids which in their turn produce further breaking down of the tissues.

While the acids themselves are not directly toxic, but the associated diminished alkalinity of the blood may result in an internal asphyxiation of the tissues, expressing itself in vomiting, drowsiness, and coma. The acetonuria in delayed chloroform poisoning finds its explanation in a diseased liver which is unable to deal either with its own fat or with that reaching it from elsewhere.

Dr. J. Rose Bradford's contribution is a brief presentation of the present teaching regarding the pancreas and diabetes mellitus, with illustrative cases briefly sketched. He says diabetes is not an entity but a clinical label attached to a number of different conditions of different morbid anatomy and liable to follow different courses.

The interacinar or intralobar variety of chronic pancreatites is that form with which diabetes is usually associated—diffuse intralobular fibrosis. It is in this form that the islets of Langerhans undergo degenerative changes. From Dr. Bradford's article one must infer that the conclusive proof is not yet adduced showing that diabetes can be attributed to the destruction of these islets, but experimental results certainly associate the glycosuria with the loss of an internal pancreatic secretion.

The paper by J. Walker Hall deals with the Basis of Therapy in this disease. He points out the necessity of arriving at a conclusion about the capacity of the tissue cells in diabetes, and regards undernutrition as the greatest danger of the diabetic subject. Abnormal, intermediate or by-products result in the unusual metabolic processes going on in the disease and these endanger the life of the cell. Already we have seen that these intermediate products express themselves in an excess of ammonia acetone and acetic acid, and quantities of these substances vary directly with the extent of the impairment of the assimilative powers of carbohydrates. Hence the necessity of increasing the activ-

ities of cellular metabolism with regard to carbohydrates and at the same time protecting the cells from the injurious effects of incomplete or abnormal metabolites.

The extent of undernutrition is roughly gauged by the amount of ketonuria—acetone bodies, acetic and oxybutyric acid.

By "tolerance" is meant the utilization power or capacity of the tissue cells of the diabetic for carbohydrates, and thus a key is furnished to the problems of treatment for the individual phase or extent of the condition: a standard test diet is given containing, among nitrogenus elements, say, 100 grammes of bread. If this produces no glycosuria more is given until sugar appears, then it is continued until the sugar is constant and the bread then diminished. Effects of exercise, drugs, etc., on the sugar output and ketonuria may all be observed.

The main object is to raise carbohydrate capacity of the tissues, increasing the utilization of the fed carbohydrates, diminishing the amount of unused sugar and decreasing acetonuria and the acidosis.

Von Noorden and Naunyn's classification of glycosuria in regard to "tolerance" is quoted, and the article closes with special reference to ketonuria.

Alfred R. Parsons' views on the drug treatment of diabetes mellitus are found in the following summary:

1. There is no specific treatment for diabetes.
2. Drugs play at best only a subsidiary part in diabetic therapeutics.
3. Opium is the best anti-glycosuric drug at present available.... most useful in severe cases. Dose 1-5 grs. of the extract.
4. Jambul may be used as an alternative to sodium salicylate or aspirin.
6. A positive ferric chloride reaction indicates the daily administration of sodium bicarbonate in doses of 150 grains and upwards.
7. The intravenous injection of 35 ounces of a 3 to 4 per cent. solution of carbonate of soda affords the best chance of restoring consciousness to diabetic coma.
8. Constipation should be guarded against in all stages.

Dr. R. T. Williamson has studied the action of certain drugs and supplies a few illustrative charts showing the results of the administration of the salicylates and aspirin. He has often found these drugs more satisfactory than opium, especially in the milder forms of the disease.

Dr. Marcel Labbé, of Paris, deals with the subject of Diet and Diabetes. He divides diabetic patients into two main classes:

(1) those without loss of nutrition,

(2) those with loss of nutrition.

In the first class we found the majority of patients, the fat diabetic of older writers,—the arthritic diabetics of the text-books. In them the nitrogen balance is maintained. They possess a *relative tolerance* for carbohydrates, and glycosuria is produced only when the patient exceeds his carbohydrate tolerance; the sugar originates from the carbohydrates of the food.

In the second class the condition is very different. The nitrogen balance is upset, tissues are destroyed. He is unable to tolerate even the smallest amount of carbohydrate, all that he may take is being excreted as sugar. Even when carbohydrates are absolutely excluded from the diet, glycosuria continues, originating from the food and from the tissues—the carbohydrates, albuminuria and fats.

In both classes dieting is the chief means of controlling the disease in the first class of cases, while in the second it is no less important in warding off the three-fold danger of hyperglycæmia, (hyperglycistia)—from loss of nitrogen nutrition and from acidæmia (ketonuria).

Dr. Labbé sees a difficulty in the contradictory nature of the indications, "Hyperglycæmia," hyperglycistia calls for a reduction of carbohydrates, nitrogenous denutrition requires an abundant intake of albuminoid matters; but acidæmia is produced by excessive meat diet and on that account must be fought by vegetarian diet. Of two evils the less must be chosen; the danger of hyperglycistia being less serious than that of acidæmia, excessive use of albumins must be avoided and the patients must not be deprived of carbohydrates; the diet must be plentiful and rich." There are two successive phases in Dr. Labbé's treatment of the first class (diabetes without loss of nutrition) of patients. In the first, the care of hyperglycæmia. The carbohydrates are gradually lessened until no sugar is found in the urine. This may be accomplished in two months or so, as an abrupt reduction is not often satisfactory The amount of carbohydrates in the diet of tolerance. The amount of carbohydrate is gradually increased until sugar again appears; then again reduced until glycosuria disappears. The actual degree of tolerance lies between the last two amounts tried that which causes and that which does not cause sugar to appear in the urine. On such a diet it is safe to keep such a patient, examining his urine from time to time, while such treatment has a powerful and positively curative effect upon diabetes with loss of nutrition.

Glycosuria and Life Insurance forms the subject of an interesting paper by Bertrand Dawson of London Hospital. "The only safe rules,"

says Dr. Dawson, "with proposers up to 45 or 50 are to treat copper reductions as due to sugar and glycosuria as diabetic unless there is evidence to the contrary. In the absence of such evidence, the case must be regarded as diabetes *in posse* if not *in esse* and the proposal declined, or in special circumstances, accepted for a short term at high rates."

W. F. H.

Stewart and Ritchie. *Edinburgh Medical Journal,* May, 1907.

The dose of tuberculin R. found most suitable in the case of adults was 1-500 mgrm., and in children under 12 1-1000 mgrm.

The term "negative phase" is used to indicate the diminution of the tuberculo-opsonic index which follows the inoculation of an infected person with tuberculin. The depth of the negative phase, as a rule, is less where the primary index is low than where it is high. The usual fall in a tuberculous patient was 0.2.

The tuberculous cases which were inoculated number 62, and include all the more common forms of medical and surgical tuberculosis. In 56 of these cases a negative phase was obtained. This represents a proportion of 90.3 per cent. In 13 cases, either normal or suffering from diseases other than tuberculosis, in no instance did the observers obtain a negative phase after inoculation with similar doses.

The following conclusions are drawn:

1. A single estimation of the opsonic index is an unsatisfactory method of diagnosis, as both tuberculous and non-tuberculous cases fall within and without normal limits.

2. If a negative phase appears after inoculation, the presence of tuberculosis may be diagnosticated.

3. The absence of a negative phase indicates the absence of a tuberculous infection.

The method which the authors advocate, as may be seen, compares favourably with all that has been claimed for the reliability of the old tuberculin test. It has, however, the distinctive advantages of being applicable to any and every case, of interfering in no way with the patient's ordinary avocation. The tuberculin employed is a bacillary product, and is free from such toxins as the old tuberculin contained. The dose given is a small one, being within the therapeutic limit. This quantity has been given now in scores of cases and no instance of harmful effects or discomfort attributable to it.—(*Medical Review of Reviews,* Aug., '07.)

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PRESIDENT'S ADDRESS, DELIVERED AT THE FORTIETH ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

Montreal, September, 1907.

BY

ALEXANDER McPHEDRAN, M.B.,
Professor of Medicine, University of Toronto.

It is my first duty, as well as pleasure, to acknowledge my deep sense of gratitude for the honour you have done me in electing me to the chief office in this Association. I have experienced the unusual courtesy of an election for a second term. This, however, may not imply a compliment but rather a reprimand and an injunction—a reprimand for duty left undone, and an injunction to be more diligent in the discharge of duties of this high office, not to neglect the opportunities nor evade the responsibilities pertaining thereto. If so, I freely acknowledge the justice of the censure. The Presidency has been held by several of the ablest physicians this country has produced, and to succeed such men would be an honour to any one. It would, however, have been in the interests of the Association and much more in accord with my own feelings, had the by-law been observed, which requires that the president be elected from the city in which the meeting is to be held. In justice to Montreal this should have been done, as then some of our difficulties would have been avoided, and such honour as pertains to the position would have been bestowed where it belongs.

However, under the circumstances it is my pleasing duty to gratefully acknowledge the cordial sympathy shown by our Montreal friends, a generous cordiality in keeping with their well-known character. I can only most sincerely thank them for their cordial good-will and co-operation. I hope it will be my privilege to welcome one of their number as President at the next meeting held in Toronto, when I hope

to be able to show evidence of my appreciation of the uniform kindness that has been extended to me here. I wish further to express my great appreciation of the work of the Executive and various committees; the results are evident in the excellence of this meeting.

I may be permitted here to give expression to the deep sorrow with which every member of this Association heard of the calamity that overtook McGill University and Medical Faculty in the loss of their building last April. It is not necessary to assure them of our sympathy. The loss was not McGill's only, but was one also to medical education in this country and on this continent.

We are glad to know that the cloud had its "silver lining" and that now they are to be congratulated on the near prospect of a magnificent new building instead of condoled with on the loss of the old one good as it was. We knew that "Phœnix-like," the institution would rise from its ashes and be greater than ever. As we sorrowed with them so will we all now rejoice with them. We wish them "God-speed."

During the past year several members of this Association have gone to "the bourne whence no traveller returns." Among these were three of the most eminent in the Canadian profession, men of world-wide repute, to whose memory a brief reference is permissible. In this bereavement this city has to deplore the loss of Sir William Hingston and James Stewart, and Toronto, that of George A. Peters. All three had the common experience of being reared in a hard school, so that success could be attained only by living laborious days and practising the most rigid economy, conditions which often develop, as nothing else can, the best that is in a man. Each was a master in his own sphere, each possessed in an eminent degree "the genius for taking pains." Of each it may with truth be said that he was "the noblest work of God, an honest man."

Sir William Hingston was a distinguished type of the surgeon of the old school, a school in which it was essential to possess courage, decision and dexterity. Those of us who were not in close touch with his surgical work were attracted to him chiefly as the man. He was the embodiment of refined courtesy and of frank kindliness. He was intolerant only of what was unworthy. We miss the tall, erect, courtly man whom we all loved, and with whose graces there was always such a charm. Canada, in these her yet salad and hoydenish days, can ill spare men of such culture.

James Stewart stood for all that is best in medicine. He was of such singularly quiet and unobtrusive nature that it was only those with whom he was closely associated who knew the riches of both mind and heart that lay hidden behind the simple and unassuming manner.

His knowledge of medicine was deep and clear, such knowledge as comes only by living laborious days of self-sacrificing devotion to our Art.

George A. Peters was a type of the best in the modern school of surgery. Among Canadian surgeons, at least, he had no superior and few peers. Who could desire higher praise? He was a man of sterling character and rugged honesty, and fearless in his condemnation of whatever was unworthy of the highest traditions of his profession. His was a spirit that no difficulties or dangers could make quail or deviate from the path of rectitude. How vividly in recalling his career we are impressed with the truth of the aphorism of the Father of Medicine: "Art is long and time is fleeting."

I have great pleasure in drawing attention to the fact that Dr. William Bayard of St. John, N.B., a past president of this Association, completed seventy years in the practice of medicine on the 1st day of August last, and that he is still able, at the age of 93 years, to meet the wishes of many patients by ministering to their wants. His Alma Mater, the University of Edinburgh, on this 71st anniversary of his graduation, showed her appreciation of his character as a man and his work as a physician by conferring on him the degree of LL.D. Such a long professional life is, perhaps, unprecedented in modern times, it is, at least, so I believe, in the annals of Canadian Medicine. I have already, in the name and behalf of the Association, extended to Dr. Bayard the greetings and best wishes of the Association. I would suggest that now in Annual Session you authorize me to telegraph the renewal of our high esteem for him and sincere hope that the "eventide" may be calm and without a cloud.

I. Re-organization.

It is just forty years since this Association was organized. The first meeting was held in Quebec under the Presidency of Sir Charles Tupper, one who has since attained such eminence as a statesman. It is interesting to note that this first meeting was among the largest ones held by this Association—109 being present. At the second meeting, held in this city, there were 135, after that for several years the attendance never reached 100. Even of late years, compared with this first meeting, the Association has not shown the advance either in attendance or work that its founders were entitled to anticipate. However, history has but repeated itself, the higher life, intellectual and scientific, of young countries as of individuals, is always the latest to develop. It is quite possible that to the clear vision of the Fathers of the Association it was evident that its growth would be slow and subject to many

vicissitudes, that it would only be after many years of painful struggling that much advance could be hoped for. They doubtless foresaw such advance could come only after the growth of culture, that is, after the conditions of the people became stable and sufficient wealth accumulated at least to give ease, if not luxury, to many. For various reasons such a state has been slow in maturing in this country, but it may be said to have now come, at least in the older provinces. Such has been the history of the United States, where only recently science and art have made material advance, and even yet "it is the day of small things" with them in comparison with the development of the natural resources and growth of wealth of that country. Our history will doubtless be similar to theirs, although the indications are that our material growth will be even more rapid in proportion to the population. It is said that, although our population is only six millions, our immigration equals now that of the United States when her population was 40,000,000. Such great accessions we have good reason to fear, are beyond our country's powers of assimilation.

As a national association we have to bear our part of the great responsibilities imposed upon the country by these great accessions of foreign people and the rapid growth of its material interests. It devolves upon us, as far as possible, to promote the medical and scientific interests of this country so that they may be kept abreast with its material development. This responsibility rests on the older provinces chiefly, as in those there is more leisure and culture. United action on our part will be necessary to cope successfully with these responsibilities and to enable us as a profession to attain and maintain the status in the country to which we are entitled. This country's conditions are unusual. Its geographical extent is very great, and its population as yet only occupies its southern border extending from ocean to ocean. Community of action as well as of interest will, consequently, be difficult to develop and maintain. It seems therefore urgent that all available means should be taken to harmonize the interests of the various parts of the country in order the more efficiently to apply our energies for the advance of general scientific and professional interests. The closer we are in touch with one another the greater should be the stimulus to do higher works, the increased zeal and enthusiasm should yield results which will enhance our reputation as a profession and also redound to the credit of the country. Every scientific advance, however small, is an asset to the country, both in the intrinsic value of the work itself and in the impetus it gives to further advance. It is difficult to impress laymen, even the best educated, with the importance

of this truth; but that is not a matter of surprise, seeing that we ourselves are lacking not a little in appreciation of scientific achievements. This indifference to scientific and intellectual affairs is due to many causes, chief among which is the struggle for existence incident to a young country. This struggle has absorbed so much of our energy that little attention has hitherto been paid to purely scientific matters. Then our training is almost wholly confined to the preparation for purely professional work, and so little research work has been done that our attention has not been seriously directed into scientific channels. The result is that thus far, with a few notable exceptions, we have been content with the discharge of the daily routine of professional duty. That such is the present status of the Canadian profession few, I think, will deny. The question arises—What is the duty of this Association in relation to such a state of affairs? As the national organization representing the profession of medicine no one can take exception to the view that it should be the leader in all movements having for their objects the elevation of the status of the profession and the advance of the scientific interests of the country.

In the past the Association has been satisfied with a quiet existence, content to take by the way anything that was offered, obeying both in letter and spirit the injunction, "take no thought for the morrow." To many, especially of the younger men, living even at our doors it is scarcely known. During the year I have asked not a few to present papers at this meeting who had almost forgotten the Association's existence, if they ever knew of it. It is surely time to awaken out of this Rip Van Winkle state and develop the power of the Association so that its existence shall be known to the remotest corner of this land. How can this best be done? That the present constitution of the Association is inadequate to making any serious effort in this direction all will agree, and if anything is to be accomplished there must first be such a re-organization as will enable the Association to take effective action on the many important questions that must come before it from time to time. It is only by doing so that we can fulfil the objects which forty years ago its founders had in view. The very existence of this Association imposes on it the duty to consider all questions of national importance. It cannot make good its claim to a national character if it evades the responsibility. While the constitution of the Association at its organization was the best that could be devised to suit the needs of the time, it is but ill-adapted to the greatly altered conditions of the present day. The time seems ripe and the need urgent for a complete re-organization in order to fit the Association to meet the growing

demands incident to a growing country, and enable it to occupy its place in the medical world. Even for the continued existence of the Association it seems necessary to make radical changes in its constitution.

These are some of the motives which, at Halifax two years ago, led the Association to take the preliminary steps looking towards re-organizaiton. A committee was appointed to consider the whole matter. Its report is ready for your consideration. The committee in its recommendations has followed closely the constitution of the British Medical Association, the oldest of all similar organizations, and of the American Medical Association, which was modelled after it, and which has, during the last few years, made such rapid progress in perfecting its organization and increasing its usefulness. Our members are too small and we are too widely scattered across the continent to permit of our following the plan of either organization in its entirety; we must adapt our proved of by the Provincial associations of Ontario, Nova Scotia, and British Columbia, the only associations before which it has been presented. It is to be regretted that the scheme could not have been presented before every association and society in the country by some member of the committee.

One of the most important objects aimed at in seeking proper organization would be the effect that the existence of a vigorous association would have on general medical education. It would enable the profession to bring its opinion to bear on whatever might call for encouragement or amendment. The natural consequences would, not only be an improvement in medical education, but in time a unification of the requirements for qualification in the several provinces. This should furnish a good working basis for general registration for the whole country, a movement that has been so ardently and ably promoted by our distinguished colleague, Dr. Roddick. In view of the fact that medical education in Canada is wholly in the care of the universities, such a basis for registration should be acceptable to all the provinces. There is not a medical school in the country and therefore no private interests to be considered. I am sure all will regard this as a cause for congratulation. This is the only country in the Anglo-Saxon world in which such a desirable state of things exists. The Medical Faculties of Dalhousie University in the east, Laval and McGill in Montreal, Queen's in Kingston, the University of Toronto in Toronto, the Western in London, and Manitoba in Winnipeg, are all under the control of university courts. This should be a guarantee both of the excellence of the work done and of the certainty of steady advance.

With such conditions it should be possible for the undergraduates in any of these universities to pass from one university to another at the

end of any session as seemed to best suit their needs. The requirements in the universities being similar it would be sufficient for him to present the evidence showing that he had fulfilled these requirements for him to obtain registration in the institution which he desired to enter. Such an arrangement would lead the several institutions in their own interests to improve as far as possible the character of their work.

If this Association were well organized, embracing in its membership the great majority of the practitioners of the country, and actuated by high ideals, it is not too much to say that, in a few years, it could bring the necessary influence to bear on these universities, and on new ones that may be established, to secure such a general minimum standard of qualification that, their degrees would be a passport to legal qualification to practise medicine in any part of the country. If this plan is feasible, and it should be, it is within the "sphere of usefulness" of this Association; this is, in fact, the only organization which can successfully promote such a scheme. Such an opportunity to promote the interests of the country as well as of our profession should be sufficient, if there were no other reason, to lead to a proper organization of our forces. This course would not be in the interests of the universities as much as in that of the country, and of this Association as representing the profession. It is much easier to regulate and guide whatever pertains to the welfare of the country in this its early stage of growth, than it will be to gain control after it has developed into a populous country with fixed local interests. In the new western provinces there are some signs of a feeling of antagonism to the older parts becoming evident. There seems to be a fear that they may wish to dominate too greatly the policy of these newer parts. It will take wise management and judicious action to arrest the growth of that feeling, and forestall any attempt that might be made to estrange the sympathy and co-operation of these new provinces. Most of the western profession have been recently graduated from our universities and should understand us so well that with ordinary judgment, it should not be a matter of much difficulty to secure and retain their hearty co-operation in any scheme having for its object the highest interests of the whole country as well as of the whole profession. I say *country*, because we should see to it that the public recognize the fact that this and similar organizations exist for the promotion of what is for the general good as well as for the benefit of those more immediately concerned. The whole is but the sum of its constituent parts, and can be affected for good or ill only through the parts. Therefore what we, as a constituent part, do to promote our own true interests is of benefit to the country at

large. It is highly desirable that the public should realize that the objects of this Association are not only to benefit the profession, but also, and chiefly, for the promotion of what is for the general good. It is not a "trades union," but a national organization which should have, and has, the nation's welfare for its chief object. It is apparent to all that the country stands in need of all the assistance which this and other agencies within its bounds can bring to its aid in its enormous responsibility of assimilating the vast numbers of peoples from all nations annually entering its domain, and of developing and maintaining a proper national spirit marked alike by vigour and honour. That she is not coping quite successfully with the difficulties imposed upon her is a subject of common observation. Probably no country developing in population and resources with such phenomenal rapidity has ever been able to prevent, at least temporarily, some deterioration in public morals. It is almost a daily experience to hear some one remark on the decadence of the public conscience. With the large immigration from all parts of the world, and the intense striving after wealth incident to the development of a young country of such large resources, it is doubtless inevitable that there will be some relaxing of the rugged honesty, private and public, of the pioneers of this country, but that there should be even a semblance of ground for the very general charge of moral decadence is much to be deplored. As loyal Canadians we have a profound interest in this matter. Public morals cannot be degraded without affecting unfavourably all classes, so that in our own interest as well as that of this land which we love, to which we return from our pilgrimages year by year with an ever-increasing affection and pride, and for which, if need be, we would yield our heart's blood, we should be con-

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strained by duty as well as by loyalty to use our utmost efforts to stem the downward tendency. In such an effort the Association has a part to perform; in order to perform that part effectively it will require to be furnished with every facility with which we can provide it.

Hitherto the Association has been content to minister to the wants of the general practitioner in its two sections of medicine and surgery, but we have reached a stage when it should afford facilities also for the encouragement of all classes of special work. The field of medicine is so broad as to render specializing necessary. While all should possess sound, general knowledge none can be masters in more than a few branches at most. This year a first step has been taken in extending the work of the meeting by the formation of a Section for Laboratory Work. With a more vigorous association other sections will be neces-

sary in order to bring out the best work in the various departments. An omnibus meeting never accomplishes much that is of the highest value. Men will not do their best work unless there is an opportunity of presenting it to such as are specially qualified to appreciate its value. While there are many questions in all specialties that the general meetings are quite able to discuss and which should, as far as possible, be there presented, there are others that only those specially trained are able effectively to criticise and judge of their merits. The announcement is just made of the Eighth Medical Congress in Australasia to meet next year. It is to consist of eleven sections. With more than double their population we should be quite as capable of maintaining meetings with as many sections, in which the work presented would be of the highest order. I need not specify what additional sections should be formed. The widespread prevalence of contagious diseases indicates the necessity of directing even increasing attention to sanitation. Regarding tuberculosis there is great awakening on the part of the public, but as to typhoid fever there is amazing apathy, both in city and country. The formation of a section of state medicine seems therefore very desirable. Many other sections might be formed with great advantage to the Association's usefulness.

Another matter demanding the prompt and earnest consideration of this Association is the nostrum evil. Our friends to the south have been waging an increasingly active crusade against this evil during the last few years, and duty to the public no less than to our own interests demands that our action be prompt and energetic. The public do not understand the matter, and have no conception of the enormous injury done to their best interests. Those among them who give serious thought to the matter hold us responsible for their education in this question. I scarcely see how we can ignore the responsibility without detriment to our own interests as well as to theirs. They will be ready once they understand the matter to aid in suppressing it, or mitigating it where it cannot be wholly eradicated.

There are many other questions that might fairly claim attention, such as intemperance and the cure of the inebriate, the physical training of the young, the medical inspection of schools, etc., but time does not permit.

The educational authorities in the United States have just reported that 12,000,000 school children—one-third of their whole school population—are suffering from physical defects. Many of these are easily remedied, *e.g.*, malnutrition, defective breathing and vision, and enlarged glands. The nation has a vital interest in the condition, physical

and mental, of its children, and it is for this Association to point out the way in which these matters should be dealt with.

II.—A Journal.

The second need of the Association is an official journal. It is essential for several reasons. In the first place the Association's constituency is a very large and sparsely settled one and it appears necessary therefore that there should be a regular means of communication established in order to maintain a community of interest and an avenue through which the needs of all may be made known. Without such a means of communication it will be difficult to develop a truly national spirit, and unify the interests of the medical profession in Canada.

In determining on such a venture we would not be entering on untried grounds as we have the example of the two great Anglo-Saxon associations to guide us—the British, and the American Medical Associations. Neither of these associations could possibly have attained a tithe of its present usefulness without its own journal. In fact, it is doubtful if they could have continued to exist, at all events, they would not have been able to wield the power and influence they now possess. I do not forget that our numbers are relatively small. Still there are over 6,000 physicians in Canada, a constituency surely large enough to maintain a monthly journal of first class character, second to none published either on this Continent or in Europe. It should be elastic enough to admit all good contributions offered. Such a journal would, in a short time attract the bulk of the best work done in Canada, and would thus become a medium to which other countries could turn to learn of the scientific medical work of this country. Hitherto all the work done here has been published through British or United States channels, and has gone to the credit of these countries. We are loyal Greater Britons. We must at the same time be loyal local Britons,— that is, Canadians. We cannot be truly loyal to the greater without being supremely loyal to the less, and it is by our loyalty to our own country that we can best show our devotion to that Nation of which we are rightly proud of being a part.

It requires no argument to prove that with a first class journal a great impetus would be given to scientific work, and that the position of Canadian medicine would be greatly improved in the estimation of of the scientific world. The other sciences would also indirectly share in the benefit because no class of scientific work can be improved without having the influence reflected upon others.

Such a journal should also be made to meet the needs of the general practitioner, the "bone and sinew" of the profession. A section could be devoted specially to their interests.

The expense has been regarded by some as an insurmountable obstacle. Australia, with less than half our population, has published for years a creditable monthly journal. Can we not do as well? If every member here invested a small amount in such a venture, to be paid back, without interest, when funds became available, say five, or even ten years hence, it would be one of the best investments they ever made. Such an investment would bring an assured annual return, first, in enhancing the *esprit de corps* and improving the tone of the Canadian profession; second, in creating in us a greater appreciation of our own work and capacity, teaching us that the home product is equal to that of any other country, a lesson we sadly need to learn; and, thirdly, in stimulating all, especially the young men, to do work of ever-increasing merit, and so add to their own and the country's reputation.

In advocating the establishment of an official journal I wish it to be clearly understood that no disparagement of existing Canadian journals is intended. However excellent these journals may be, each can only serve its own locality and special *clientèle*. It is not possible for any private journal to reach all the Canadian profession, and even if it did, its influence would be much less than that of the Association's own journal. The interests of the private journal, being local and special, should not be infringed upon by an Association journal whose work would be identified with the general interests of the profession of the whole of Canada as well as the promotion of medical science. Anything like a monopoly of the journalistic field is not desired. The aim is not only to stimulate all to do better work and to promote the interests of medical science, but also to bring all the members of the profession into closer touch with one another so as to further the national spirit and greatly increase their influence in the country, and to enable them to bring their united influence to bear on all matters of national importance. These interests are quite apart from, and should not in any way conflict with, those of the private journals.

I am convinced that a journal is a necessity, if not to our existence, at least to our success. I have full confidence in the ultimate success of our efforts, if steps are taken to establish such a journal and, that within a very few years, at most, we will have a journal equal in merit to the best, and in which our ablest men will be more than willing to publish their best work.

Some fear we cannot cope with the difficulties of developing and maintaing such an active organization as I have outlined, or of publishing a journal worthy of our Association and of the Canadian profession. That the difficulties will be considerable no one doubts; still

these difficulties can be successfully met by the Canadian profession—a profession whose members are, it is no boast to say, physically and mentally the peers of the best in the world. A survey of this audience should be sufficient to convince any doubter, and this audience is but a fair representation of the great body of physicians scattered across this country from the Atlantic to the Pacific. Great as the difficulties will be I have full faith in our own powers to overcome them. We need but united loyal action to attain a success that will gratify ourselves as well as our friends. Some will say that these views are chimerical, but to me they but feebly outline the possibilities which lie before us. A few years ago had any one said that this country would now be developing materially with the present phenomenal rapidity, that it possessed such extensive acreage for the growth of wheat and other grains, that it is so rich in mineral wealth, and that it could afford homes for many millions of population which we now know it is capable of providing, his views would have been scouted as too visionary to merit serious consideration. The venerable Lord Strathcona, whose sagacity excels even his buoyant hope, and who knows this country as perhaps no one else knows it, has just been credibly reported as saying that he believed this country by the end of the current century will have a population of 80,000,000.

A recent writer, whose book has been most favourably received, who came from England as an immigrant, and remained six or eight months traversing the country from coast to coast, mingling with the masses, and working in forest and field, so as to make a thorough study of the country, says, it is quite capable of sustaining a population of 140,000,000. May we not reasonably look forward to something like a corresponding development on the literary and scientific side?

One of the most potent causes which have retarded the development of Canada in all its aspects—in population, industries, literature, science, national sentiment— has been its proximity to the Motherland and to the strong nation to the south of us. We have been overshadowed by both, perhaps a little overawed, so that we have feared to assert our manhood. But it is to inertia rather than fear that the slow growth of national spirit is due. We have had facilities of all kinds desired close at hand in those two great countries so that we have been saved the trouble of developing our own resources. But the dawn of a new development has come, and Canada is known the world over as the "land of promise." Are we to be laggards in this national awakening? No one who knows the Canadian profession will doubt the answer.

It is for us to consider whether the profession is to be provincial or national in its character and aspirations; whether it is to consider ques-

tions from a provincial, even parochial, point of view, or occupy a higher plane and regard matters in a broad, national spirit, and so take its place and assume its responsibilities as one of the forces moulding the destinies of the nation, feeling that it has especially committed to its care the development of medical science in its highest character. It may be said that this is too high an ideal. We must not forget that the higher the ideals, if we try to attain them, the greater the success. However, I cannot regard the ideal as too high, but rather that it but faintly indicates all the future holds for us if we are but equal to the demands of the present and grow with the increasing needs of rapidly growing conditions. With a united and courageous association embracing the whole profession of this country and actuated by high ideals of our duty and of the needs of the country, I have every confidence that the results would far exceed our highest anticipations. Such success, however, can be attained only by earnest united effort. "In Union there is Strength." To the multitude, whether the Nation or Association, as to the individual, true greatness comes only by unremitting toil, energy, and intelligence directed by the highest motives and ideals. To all who so pursue their vocation, whether crowned with apparent success or not, true greatness comes in proportion to their deserts. Ours will be no exception to the universal rule.

We are citizens of a giant young country of inexhaustible resources entering on the threshold of its greatness and power, blessed with an invigorating climate which should produce a virile race such as no country ever excelled. Such is our heritage. You know that "to whom much is given, of him also shall much be required." That we *can* meet these our responsibilities so as to fulfil the requirements, I have the fullest faith; that we *will* meet them successfully, remains for all, especially the younger members of the profession, by their effort and work, to prove.

SOME PROBLEMS IN CONNEXION WITH THE SUPRARENALS.

BY

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First, let me express my sincere gratitude for the high compliment which you have paid me in asking me to give the address in Medicine; it was impossible to hesitate about accepting such an honour even had

[1] The address in Medicine, delivered at the meeting of the Canadian Medical Association at Montreal, September 12th, 1907.

it not been conveyed through Professor Osler who, hailing from McGill, is now Regius Professor in Oxford. The subject matter of an address in Medicine must always be a source of some anxiety to those entrusted with the honour. It may either be on general lines and deal with the history, recent advances, future and relations of medicine, or it may be more special and deal with a single subject. Each course has its own disadvantages; but, after some consideration, I have decided on a special subject, and must beg your indulgence for the following review of some problems in connexion with the suprarenal glands.

As is well known the suprarenals are composite glands consisting of two portions which are distinct from a developmental and from a physiological point of view—the cortex derived from the coelomic epithelium of the Wolffian ridge and closely related to the genital glands, and the medulla derived from the sympathetic and neuro-ectodermal in origin. These two portions are separated from each other in elasmo branch fishes, the cortical cells forming the single inter-renal gland and the medullary cells a series of paired bodies connected with the sympathetic (Swale Vincent). It will be convenient to discuss the cortex and medulla separately.

The Cortex.

The cortex is larger than the medulla and is composed of epithelial cells the structure of which suggests a high degree of functional activity: in Biedl's hands experimental removal of the cortex, the medulla being left intact, was followed by death of the animals; and it is stated that compensatory hypertrophy of accessory suprarenals, when this occurs, after excision of the main glands, is solely cortical. These considerations strongly suggest that the cortex has some important function and that it is essential to life, but in what exact way is as yet unknown. The most certain point about the cortex is that it is quite unlike the medulla. Its cells contain fat and lecithin, the significance of which is unknown, but do not give a green colour with ferric chloride (Vulpian's reaction), or a brown colour with chromic acid, as the (chromaffine) cells of the medulla do. Physiologically extracts of the cortex are quite inactive and do not raise the blood-pressure. Our knowledge as to the function of the cortex is very imperfect, but some arguments can be adduced in favour of each of the three following views, namely, that it may be concerned (1) with growth and development, especially of the sexual organs; (2) with neutralization of poisons, or (3) in some manner with the internal secretion of the medulla—adrenalin.

1. *The relation of the cortex of the suprarenals to growth and development, especially of the sexual organs.*—It is now known that there

is a definite group of cases in young children, the peculiar feature of the cases being that a primary tumour of the suprarenal body (hypernephroma, mesothelioma, Woolley)[1] is associated with excessive development of the organs of generation, hair, and fat. Bulloch and Sequeira[2] have collected ten cases, all but two under eight years of age, two in males and eight in females, showing this precocious development in association with a hypernephroma which, in some of the cases at any rate, was derived from the cortex of the suprarenal; future researches will naturally be directed to determining whether hypernephromas of cortical origin are, as suggested here, specially associated with exaggerated growth, while hypernephromas arising in the medulla of the suprarenal show no such association. Bulloch and Sequeira have indeed collected twelve cases of hypernephromas in children who did not show any signs of premature development, and in some of these cases the tumours, described as sarcomas or lymphosarcomas, were definitely regarded as arising from the medulla of the gland. It must, however, be noted that in adults cortical hypernephromas, which are probably more often seen in the kidney (renal hypernephromas or adrenal "rest" tumours) than in the main adrenal gland, are not associated with the notable genital development, hirsuties, and obesity seen in children. As rare exceptions to this rule attention may be directed to Thornton's[3] case of a woman aged thirty-six years, who was covered all over with black, silky hair and had to shave her face, and to a somewhat similar case in a female lunatic aged thirty-two years (Richards), in both of which hypernephromas were present. In passing it is interesting to note the rarity of renal tumours of adrenal origin in children as compared with the incidence of these tumours in adults and with the incidence of hypernephromas in early life. But, although excessive genital development and growth of hair in a child should always suggest the existence of a cortical hypernephroma, it must be remembered that these striking signs may exist without any such lesion in the suprarenals (Guthrie and Emery).[4] As bearing on the connexion between exaggerated cellular growth of the suprarenal cortex and the development of the genital organs, a few cases are on record in which suprarenal hyperplasia has been found in individuals with such excessive size of the clitoris that they were erroneously regarded as males. Further, enlargement of the suprarenals has been noted in animals during periods of sexual activity and pregnancy; and it has

[1] Woolley. *Trans. Assoc. Am. Physicians*, 1902, XVII.
[2] Bulloch and Sequeira. *Trans. Path. Soc.*, London, 1905, LVI, 189.
[3] Thornton K. *Trans. Clin. Soc.*, London, 1890, XXIII, 153. Richards, O. *Guy's Hosp. Reps.*, 1905, LIX, 225.
[4] Guthrie and Emery. *Trans. Clin. Soc.*, London, 1907, XL.

appeared to me that there is a close resemblance between the cells of the suprarenal cortex, on the one hand, and the luteal cells normally found in corpora lutea, and exceptionally in luteal cysts, on the other hand. This resemblance, both histologically and morphologically, has been insisted on by Mulon,[1] who, from observation on guinea-pigs, speaks of the corpus luteum of pregnancy as a temporary cortical suprarenal. It is interesting to compare the developmental anomalies accompanying some cortical hypernephromas with acromegaly, which is usually associated with hyperplasia or adenomatous change in the anterior lobe of the pituitary gland. For, as Shafer and Herring[2] point out, the anterior lobe of the pituitary and the cortex of the adrenal are alike in several particulars, namely, in the glandular character of their epithelium, in the physiological inactivity of their extracts, and in ensheathing collections of neuro-ectodermal cells (the posterior or infundibular lobe, and the adrenal medulla) which, on the contrary possess extremely active physiological extracts. As bearing in a somewhat remote manner on the relation of the suprarenal cortex to the growth of the body it may be mentioned that evidence is accumulating to show that primary malignant growths of the cortex, like primary carcinomas of the thyroid, have a special tendency to produce metastases in bone (Scudder)[3]. This association has also been independently noticed by Prof. Adami. This similarity of the thyroid is of interest in the light of the well-established influence of the thyroid on skeletal growth.

Conversely, hypoplasia of the suprarenals has been found in anencephalous monsters; but the relation between the two developmental abnormalities is doubtful, Zander[4] regarding the lesion of the nervous system as primary and Alexander[5] considering the suprarenal defect as primary. Very possibly, however, the failure of development is concomitant, in any case this association is not a strong argument in support of the influence of the suprarenal cortex on the growth of the body, for the hypoplasia of the suprarenals appears to affect the cortex and medulla equally and not to be specially marked in the cortex. Hypoplasia of the suprarenals has been met with in a few cases of retarded sexual development, and in the case of osteogenesis imperfecta Lovett and Nichols[6] found the internal organs normal with the exception of the small size of the suprarenals. It has also been suggested, but in

[1] Mulon, P. *Compt. rend. Soc.: biol.*, Paris, 1906, LXI, 272.

[2] Schäfer and Herring. *Phil. Trans. Roy. Soc.*: London, 1906, Vol. 199, p. 27. Series B.

[3] Scudder, C. L. *Publications of the Massachusetts General Hospital*, 1907, Vol. I, No. 3, p. 82.

[4] Zander's *Ziegler's Beiträge*, 1891, XI, 145.

[5] Alexander. *Ziegler's Beiträge*, 1890, VII, 441.

[6] Lovett and Nichols. *Brit. Med. Jour.*, 1906, II, 191.

no way proved, that mollities ossium is connected with suprarenal inadequacy.

There thus appears to be evidence that in some instances pathological changes in the cortex of the suprarenal glands, whether in the direction of hyperplasia or of imperfect development, are associated with similar conditions of growth generally, and especially of the genital organs.

2. The question whether the *suprarenal cortex has the power of neutralizing certain toxins* is a subject about which very little is known, and on which it is dangerous though attractive to speculate. It was formerly thought that the suprarenal bodies destroyed effete blood-pigment, but this conception has been given up for want of proof. That the cortex may exert antidotal properties is suggested by Myers'[1] observations that cobra poison, after being mixed with an emulsion of the suprarenal cortex was no longer toxic, control experiments with emulsions of the suprarenal medulla and of other organs being negative. Experimental infections with various organisms, such as bacillus, tuberculosis, slow diphtherial intoxication and lead poisoning (Gouget)[2] have been found to give rise to hypertrophy of the cortex of the adrenal glands, thus suggesting increased functional activity. It may be mentioned incidentally that according to Mulon,[3] the histological evidence of over-activity (hyperépinéphrie) of the cortex is increased pigmentation and diminished fat in its cells.

Adenomas or nodular hyperplasia of the suprarenal cortex are found in a certain number of autopsies. In 6,200 autopsies at St. George's Hospital, London, adenomas were present in 11 cases, or 0.2 per cent. (Hodge), and at Guy's Hospital in 0.7 per cent. of autopsies (Richards). They are sometimes found in cases of chronic pulmonary tuberculosis, but special attention has been drawn to the association of cortical adenomas with granular kidneys and high blood-pressure, and it has been pointed out that they are rare in cases of chronic nephritis with low blood-pressure. There would therefore appear to be some relation between their presence and high arterial blood-pressure; as the cortex does not contain any pressor substance it cannot be held that the cortical hyperplasia has any direct influence in causing the increased pressure, and it has been suggested that the adenomas are evidence of an attempt on the part of the cortex to neutralize the toxins responsible for the high blood-pressure (Aubertin and Ambard).[4] As bearing on this it may be mentioned that it is stated that experimental lesions of

[1] Myers, W. *Trans. Path. Soc.*, London, 1898, XLIX, 368.
[2] Gouget. *Compt. rend. Soc. biol.*, Paris, 1903, lv, 1659.
[3] Mulon, P. *Ibid.* 1907, lxii, 905.
[4] Aubertin et Ambard. *Mém. et Bull. Soc. méd. des hôp.* Paris, 1904, 175.

the kidney lead to hyperplasia of the adrenals (Darré).[2] The main interest of the speculation as to the existence of an antitoxic function in the cortex of the adrenal glands is in connexion with the pathogenesis of Addison's disease. The low blood-pressure and extreme asthenia in that disease can be satisfactorily explained as due to an absence of adrenalin or the pressor substance provided by the medulla, but the vomiting, gastro-intestinal disturbance, and the pigmentation suggest irritation of the sympathetic. This has, in the past, usually been attributed to invasion of the adjacent sympathetic by inflammatory changes, or adhesions or to mechanical stimulation of these nerve plexuses by tuberculous masses in the adrenal glands; but this explanation breaks down for cases in which the adrenals are only atrophied. To meet this objection it has been supposed that the absence of adrenalin leads, by perverted metabolism, to a toxæmic state and that this toxæmia accounts for the irritative manifestations. On the other hand, Addison's disease might be regarded as the outcome of total suprarenal inadequacy, namely, of (*a*) medullary inadequacy which, by the absence of adrenalin accounts for asthenia and low blood-pressure, and of (*b*) cortical inadequacy, which accounts for the irritative symptoms by failure or an antitoxic function exerted by this part of the organ. It is conceivable that, owing to destruction or atrophy of the cortex there is no longer neutralization of toxic bodies, and that these accumulate and irritate the sympathetic. In this connexion it may be pointed out that the widespread distribution of pigmentation is more readily explained by a general toxæmic irritation of the system in general rather than by a local irritation of the sympathetic. It may also be urged in favour of this hypothesis that it explains why suprarenal extract so commonly fails to cure Addison's disease in the same way that thyroid extract counteracts myxœdema; for, although suprarenal extract provides the wanting adrenalin, the extract of the cortex, even when given, is not necessarily the equivalent of the activities of the living cells of the tissue.

3. *That the cortex is in some way concerned with the internal secretion of the medulla.*—Although it does not contain any pressor substance it is conceivable that the cortex plays an essential part in the early stages of the formation of adrenalin and that the process of elaboration is completed in the medulla, in which part alone the full activity of the secretion is acquired. In favour of this hypothesis Schäfer and Herring[1] point out the analogy between the pituitary and

[2] Darré. *Thèse de Paris*, 1907, quoted by Beaujard. *Sem. Méd.* Paris, 1907, 230.

[1] Schäfer and Herring. *Phil. Trans. Roy. Soc.*, London, 1906. Series B, Vol. 199, p. 27.

the suprarenal glands; in both, the glandular epithelial parts (anterior lobe and cortex) are inactive, while the neuro-ectodermal parts (infundibular portion and medulla) yield a highly active extract. The close anatomical relation of the epithelial and neuro-ectodermal parts in the two glands suggests that their physiological relation may be equally close.

We have thus seen that three views at least have been put forward as to the function of the cortex; (1) that it is connected with growth, especially of the sexual organs, (2) that it is antitoxic, (3) and that it plays some part in the elaboration of the internal secretion of the medulla. A priori it would appear improbable that the cortex discharges all these three functions, but from experiments on animals Marrassini [1] has put forward the view that the three zones of the cortex—zona glomerulosa, zona fasciculata, and zona reticularis—have different functions; this is little more than a suggestion, but it shows the need of waiting for further investigation. The most definite point about the cortex would appear to be that it is correlated with sexual growth.

The Medulla.

The cells of the medulla provide a pressor substance—adrenalin—which acts on the sympathetic nerve endings. These cells, called chromophil or chromaffine, from their affinity for chromic acid, are not confined to the medulla of the suprarenal glands, but are found elsewhere in contact with the sympathetic, as Zuckerkandl's parasympathetic bodies, the inter-carotid gland which has been described as an accessory medullary adrenal (Mulon), Luschka's coccygeal gland, and some collections of cells in the pituitary body. The medulla of the suprarenals therefore forms the most conspicuous part but not the whole of what has been called the hypertensive glandular system. The importance of this conception is that it explains why cases with destruction of the medullary portions of the adrenals do not always manifest the symptoms of Addison's disease, the remainder of the chromaffine system being sufficient to supply the required amount of adrenalin; conversely in some cases of Addison's disease in which the medulla of the suprarenals is not obviously affected, the hypertensive system as a whole may conceivably be deficient.

1. *Alteration in quantity.*—(*a*) Complete absence of the internal secretion is met with in Addison's disease, as is proved by the inactive condition of the medulla when tested physiologically. It has also been

[1] Marrassini. *Arch. Ital. de Biol.*, Turin, 1906, xlvi, 73.
[2] Mulon. *Arch. gén. de méd.*, Paris, 1904, 2543.

shown that the suprarenal medulla may be devoid of adrenalin in patients dying from chronic exhausting diseases, and that though there is often obvious naked-eye change in the glands this is not an invariable accompaniment of the loss of functional activity. (Mott and Halliburton). As bearing on the interesting question whether there is normally an equilibrium between the pressor or hypertensive internal secretions of the medulla of the suprarenals and of the other collections of chromaffine cells on the one hand, and the depressor internal secretion of the thyroid on the other hand, it may be pointed out that in Addison's disease a relative excess of the internal secretion of the thyroid might be expected on account of the absence of adrenalin. There is, however, no evidence of this in Addison's disease; there are no symptoms resembling those produced by overdoses of thyroid extract or thyroidism, and so far as this goes it would appear that if there be normally a balance between the internal secretions of the suprarenal and thyroid glands, this balance is partially maintained, possibly by diminished thyroid secretion or by some neutralization of the active thyroid secretion by the tissues of the body, when the internal secretion of adrenalin fails entirely. There is, of course, one manifestation common to Addison's disease and exophthalmic goitre, namely, pigmentation, but it is very difficult, in the present state of our knowledge, to explain this as the result of one and the same process in the two diseases; it is much more likely that in both cases there is over-excitation of the sympathetic nerves, in exophthalmic goitre by an excessive and abnormal thyroid secretion and in Addison's disease by a toxæmia possibly depending on inadequacy of a hypothetical antitoxic function of the cortex of the suprarenals.

(*b*) *Diminution in the amount of adrenalin* may be considered under the heads of (1) chronic inadequacy; (2) acute inadequacy; (3) relative inadequacy.

(1) Chronic Inadequacy.—The existence of cases of larval or fruste myxœdema, or benign hypothyroidism, has now long been recognized. The most convincing proof of its existence in a given case is improvement after the administration of thyroid extract. Similarly, there is a condition of deficient adrenalin secretion. Possibly in some cases this defect of the adrenalin-secreting cells may be congenital; and it has been suggested that the status lymphaticus and hæmophilia are thus explained (Wiesel). A condition of deficient secretion of adrenalin or partial medullary inadequacy is probably more commonly acquired and the result of morbid changes in the medulla. These changes may be due to tuberculous, syphilitic, or cancerous invasion secondary

to disease elsewhere in the body; or toxins conveyed from other parts of the body, for example, the lungs in cases of tuberculosis, may so act on the suprarenals as to produce degeneration and fibrosis; or again, as the result of acute infections, such as staphylococcal or pneumococcal, the suprarenals may be permanently damaged and suprarenal inadequacy be established; this sequence of events is analogous to chronic nephritis after an acute attack of nephritis. To this condition of suprarenal inadequacy the name Addisonism has been applied by Boinet,[1] who, in thirty-seven cases of pulmonary tuberculosis manifesting Addisonism, found the suprarenal bodies fibrosed in thirty, infiltrated with small tubercles in four, and with caseous tubercles in three. This conception has some bearing on the pigmentation which so commonly accompanies advanced pulmonary tuberculosis and often raises the question as to the existence of Addison's disease. Everyone is familiar with these cases, but as the symptoms are not sufficiently marked to justify a diagnosis of Addison's disease the tendency has been rather to put the factor of the suprarenals aside in attempting to explain the melanodermia of advanced phthisis. Since it has been shown that the suprarenal medulla may be devoid of adrenalin in exhausting diseases (Mott and Halliburton) there appears to be reasonable ground for the view that Addisonism may be present in these cases. Boinet recommends adrenalin in these cases; in order to determine whether there is or is not suprarenal inadequacy the effect of adrenalin on the arterial blood-pressure should be estimated, for O. F. Grünbaum has shown that in healthy persons suprarenal extract has no effect on blood-pressure, but that a rise of blood-pressure, after the administration of suprarenal extract indicates suprarenal inadequacy. This method of diagnosis and treatment deserves further trial. But it must be borne in mind that though low blood-pressure and asthenia may be counteracted by adrenalin, the pigmentation has not been proved to depend on want of the internal secretion of the medulla and hence it cannot be anticipated that the administration of adrenalin will remove the melanodermia, which may indeed depend on a concomitant lesion in the cortex.

Just as numerous symptoms have been referred to benign hypothyroidism, so it is not illogical to suppose that various conditions, characterized by low blood-pressure and debility, both of the involuntary and voluntary muscles, may depend on an insufficient supply of adrenalin. Thus, it has been suggested, but by no means proved, that cyclical albuminuria, and those forms of neurasthenia associated with low blood-pressure are manifestations of adrenal insufficiency.

[1] Boinet. *Arch. gén. de méd.*, Paris, 1904, cxciv, 2324, 2525.
[2] Grünbaum, O. F. *Med.-chir. Trans.*, London, 1907, xc.

(2) *Acute adrenal insufficiency.*—It occasionally happens that death occurs suddenly in patients suspected to be the subjects of Addison's disease on account of some abnormal pigmentation, but without very definite constitutional symptoms; or that persons previously in fair health and certainly not known to have any disease, suddenly become acutely ill, often with convulsions, and die rapidly from collapse. In some of these cases tuberculous disease of the suprarenal bodies is found at the autopsy and death is perhaps certified as due to Addison's disease. Though this conclusion is in the main correct, it does not explain the fulminating character of the termination. It is probable that this is due to some form of acute infection attacking the suprarenal glands and leading to suppression of their functional activity, and it can easily be understood that this will occur more readily when the amount of suprarenal medullary substance available has been previously curtailed. In many acute infections, especially in diphtheria, the micro-organisms or toxins produce acute changes, such as cloudy swelling, necrosis, leucocytic infiltration, in adrenals previously healthy. In some instances the damage is so acute that hæmorrrhage occurs into the glands; this acute condition of adrenal hæmorrhage has been specially studied in children and it has been suggested on the one hand that rapidly fatal hæmorrhagic small-pox explains some of the cases, thus of ten recorded cases seven were unvacccinated (Riviere),[1] and on the other hand, that the condition is due to food poisoning or an acute toxæmia of unknown origin and is possibly a distinct disease (Dudgeon)[2] Acute adrenal hæmorrhage may also complicate various fevers such as diphtheria, enteric, pneumonia, erysipelas. The hæmorrhages may be punctate, infiltrating or massive, unilateral or bilateral. The most characteristic symptoms of these adrenal hæmorrhages are sudden onset with fever, violent pain in the hypochrondrium radiating to the loins, convulsions, vomiting, diarrhœa, and later tympanites, collapse, and death within forty-eight hours from the onset. No doubt damage is done to the adjacent abdominal sympathetic by the hæmorrhage and thus clinical manifestations analogous to those of hæmorrhagic pancreatitis are produced. Cutaneous purpura is sometimes associated with hæmorrhage into the adrenals, as in variola, and it would, at any rate at first sight, appear probable that some underlying cause—toxæmia or bacteriæmia—is responsible for both sets of hæmorrhages. It has, however, been thought that the changes in the adrenals are primary and the purpura secondary (Loeper),[3] that purpura may stand in the same relation to

[1] Riviere, C. *Trans. Path. Soc.*, London, 1902, lii, 368.
[2] Dudgeon. *Am. Jour. Med. Sc.*, Phila., 1904, cxxvii, 134.
[3] Loeper. *Clinique Médicale de l'Hôtel-Dieu*, Paris, 1906, v. 90.

acute destruction of the suprarenals as pigmentation does to chronic destruction (Dudgeon), and that the proper treatment is to give adrenalin. As arising out of this it is worth while to enquire to what extent the low blood-pressure and circulatory failure seen in acute febrile diseases is the result of temporary suprarenal inadequacy, brought about by the action of bacterial toxins on the cells of the medulla of the suprarenal bodies. The action of toxins on the heart muscle cannot be questioned, but it is conceivable that some of the loss of vascular tone in fever is due to conceivable that some of the loss of vascular tone in fever is due to a want of adrenalin and that it is not entirely the result of the direct action of toxins on the vascular system. This question is of practical importance as bearing on the advisability of giving adrenalin in acute diseases with threatened failure of the circulation. That the amount of adrenalin in the suprarenal glands may be greatly diminished by acute disease has been shown by testing the glands physiologically (Mott and Halliburton)[1]. In poisoning by diphtheria the medulla of animals is devoid of adrenalin as shown by the colour reaction with chromic acid (Elliott and Tuckett[2]), and it had previously been found emperically that adrenalin was of great value in the cardiac failure of diphtheria. An obvious objection to the administration of adrenalin in such conditions is that if it increases the peripheral resistance it will of necessity give the failing left ventricle more work to do, and so be harmful rather than beneficial. I have, however, for some considerable time been in the habit of giving adrenalin by the mouth in cases of pneumonia in adults, and in bronchopneumonia in children, and, I believe, with good results; it has appeared to prevent cardiac failure and has not given rise to any bad symptoms such as pulmonary œdema. Another objection raised against the use of adrenalin is that experimentally it produces arterial degeneration; as bearing on this I have examined the aorta in a few cases in which adrenalin had been given during life and have not found any recent changes. But I do not lay any stress on this for several reasons—my observations are quite insufficient, the amount and duration of the administration of adrenalin were not comparable with those employed in the experimental degeneration, and even if recent changes were found it might be argued that they were due to toxins of the disease responsible for death. While I believe that adrenalin is a valuable circulatory tonic in acute infections, especially pneumonia, I am anxious that this point should be more thoroughly tested; espe-

[1] Mott and Halliburton, *Archives of Neurology*, 1907, III, 123.
[2] Elliott and Tuckett. *Journ. Physiol.*, London, 1906, xxxiv, 332.

cially as I have found but little increase in the blood-pressure of febrile patients showing apparent improvement while taking adrenalin.

(3) *Relative inadequacy of the internal secretion of the medulla.*—By this is meant that if there be normally a balance between the effects of the pressor and depressor glands, any excessive secretion (depressor) of the thyroid should lead, the pressor secretion maintaining the normal mean, to a relative deficiency of the antagonizing internal secretion. The question that arises here is whether the symptoms of thyroidism, of exophthalmic goitre, and the allied toxic manifestations which, as Sir Victor Horsley[1] points out, may sometimes be seen in ordinary goitre, are in any degree due to a relative deficiency in the secretion of adrenalin. It is clear from Janeway's[2] summary that the blood-pressure is not low in exophthalmic goitre as might naturally be expected if the disease be regarded as due to simple hyperthyroidism, and that it may be very considerably raised as the result of psychical excitement. In the few cases in which I have taken the blood-pressure with a Riva-Rocci sphygmometer, it has been rather above than below the normal. It is true that in some cases of exophthalmic goitre improvement has followed the administration of suprarenal extract; I have seen this myself. But it must be remembered that exophthalmic goitre often improves both spontaneously and after widely different forms of treatment, and that it has not been shown that suprarenal medication is a certain means of counteracting the symptoms of exophthalmic goitre. We have therefore no evidence that an excess of thyroid secretion produces bad effects by means of a relative deficiency in adrenalin.

(*c*) *Excessive secretion of adrenalin.*—Here again very little is known. The excess might conceivably be (1) due to an excessive secretion of adrenalin by the medulla, or absolute excess, or (2) be relative and depend on a diminution in the amount of the thyroid secretion.

(1) Since the demonstration that atheroma can be artificially produced in animals by the injection of adrenalin (Josué,[3] Pearce and Stanton,[4] and others), the question has arisen whether high arterial blood-pressure in man and its results—hypertrophy of the left ventricle, arteriosclerosis, atrophic changes in the kidneys and so forth—may be due to an excess of adrenalin in the circulation. As it is generally believed that in renal disease a raised blood-pressure is, within limits, useful, it might be assumed that this compensatory process is brought

[1] Horsley. *Clinical Jour.*, 1904, XXIV, 29.

[2] Janeway, T. C. "*The clinical study of Blood-Pressure.*" New York, 1904, p. 200.

[3] Josué, O. *Presse méd.*, Paris, 1903, 798.

[4] Pearce and Stanton. *Jour. exper. Med.*, 1906, VIII, 74.

about by hyperplasia of the suprarenal medulla. Let us see how the evidence available bears on this question. From some experiments on animals Marrassini [1] concludes that interference with the renal excretion increases the functional activity of the adrena medulla. A case of parenchymatous nephritis with great hypertrophy of the left ventricle and manifest hyperplasia of the medulla of the suprarenals has been reported (Vaquez and Aubertin [2]), and might be taken to support this view. But as regards this special form of renal disease this would appear to be almost an isolated observation. Wiesel [3] has recorded a number of cases of high blood-pressure, arteriosclerosis, and granular kidney associated with enlargement of the suprarenal medulla and also of the chromaffine cells in the solar plexus. Here it might at first sight be thought that the suprarenal change was the cause of the high blood-pressure and the structural changes, as in experimental atheroma. It has, it is interesting to note, been suggested (W. Russell [4]) that certain foods, especially proteins, may lead to increased secretion of adrenalin. It would thus be possible to construct a hypothesis of dietetic excess, absorption from the intestine of toxic bodies which stimulate the medulla of the suprarenals to increased functional activity followed by hypertrophy, and that subsequently the cardio-vascular changes are produced. But Wiesel believes that the cardiac hypertrophy precedes the hyperplasia of the suprarenal medulla and is not due to it. This relation between the sequence of events must be somewhat difficult to determine and the subject is in need of further study. But it is clear that at present there is no proof of the existence of any disease due to excessive adrenalin secretion, and corresponding to exophthalmic goitre in the case of the thyroid, but on this point we must be content to wait for further information.

(3). *Relative excess due to a deficiency in the amount of antagonizing depressor internal secretion.* It is conceivable that as the result of the atrophy of the thyroid which so commonly accompanies advancing years, the equilibrium normally existing between the internal secretions of the thyroid (depressor) and of the adrenal medulla (pressor) would no longer be maintained, and that an excess of adrenalin would therefore accumulate in the circulation and thus induce a correspondingly high arterial pressure. In other words, that the rise of arterial blood-pressure as life advances is due to a predominance of the pressor internal secretions. In support of this it might be urged that in myxœdema it

[1] Marrassini. *Arch. Ital. de Biol.*, Turin, 1906, XLVI, 82.
[2] Vaquez et Aubertin. *Compt. rend. soc. biol.*, Paris, 1907.
[3] Wiesel. *Wien. med. Wchnschr.*, 1907, LVII, 674.
[4] Russell, W. *Brit. Med. Jour.*, 1904, 1, 1299.

is common to find arteriosclerosis and granular kidney, which are the results of long continued high blood-pressure; but too much stress must not be laid on this for the age of myxœdematous patients approaches that at which vascular degeneration is common, and in a certain number of cases of myxœdema the kidneys are healthy.

To return again to the question whether the hypothetical equilibrium between the depressor and pressor internal secretions may be upset by a deficiency of one, so that the other secretion has a paramount influence, Gioffredi's [1] conclusions are to the effect that normally certain organs and tissues—the liver, the blood, and to a less extent the voluntary muscles—transform adrenalin into an inactive product and so protect the body against the toxic results of an excess of adrenalin which might otherwise result. In order to exert this change the blood must be provided with oxygen and be alkaline, but those conditions are not necessary in the case of the liver and voluntary muscles. It is conceivable that such a compensatory mechanism might fail under the same conditions as those under which the thyroid secretion wanes, and that then a relative excess of adrenalin in the circulation would result. These considerations are highly speculative, but they may perhaps be forgiven because they bear in a somewhat remote manner on an important practical point, namely, the prevention and reduction of the rising arterial pressure of advancing years. For they suggest that the administration of thyroid extract might have this desired result, and that it may prove to be the routine treatment. Iodides which are so widely given in clinical medicine in order to lower blood-pressure have been shown to have no depressing effect on the heart or blood-pressure (Stockman and Charteris [2]); but it is conceivable that they eventually lower blood-pressure by stimulating the thyroid to an increased secretion.

2. *Alteration in quality.*—Of alterations in the quality of secretions very little is known if we except the gastric juice, but it is reasonable to believe that in the future this factor will attract attention and be shown to have most important pathological bearings. The adenomatous changes in the thyroid in exophthalmic goitre and in the pituitary body in acromegaly may safely be assumed to lead to an altered internal secretion, and so to have a causal bearing on the associated diseases.

In the case of the adrenal medulla nothing is known as to any alteration in the quality of the secretion. It is somewhat wild speculation, but it may be mentioned for what it is worth that possibly intestinal toxins may so act on the cells of the adrenal medulla as to produce

[1] Gioffredi. *Archivio de Farmacologia sperimentale*, 1907, 145.
[2] Stockman and Charteris. *Brit. Med. Jour.*, 1901, ii, 1520.

an internal secretion of such an abnormal character that the normal process of transformation of any excess into an inactive body, as suggested by Gioffredi, cannot be carried out by the tissues. The excess of such abnormal adrenalin might conceivably cause high arterial pressure, arteriosclerosis and the allied morbid changes.

Mr. President and Gentlemen, my address is now at an end, and I feel as I have felt all along since I began it some months ago that I must apologize for its imperfections and for its speculative character. I have tried to comfort myself by thinking that it is well from time to time to take stock of the current researches and hypotheses which sometimes become the working basis for the practice of to-morrow. But I must not excuse myself or make further demands on your patience, and must again thank you for an honour I shall never forget.

WHEN AND HOW TO RESUME NORMAL FEEDING IN TYPHOID CONVALESCENCE.

BY

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I have no notion that I shall be able to say anything new or startling, and do not propose to take more than a few moments of your time for the attempt to lay before you the result of my own clinical evolution in sixteen years of observation of the question under consideration.

This I shall try to do with brevity and conciseness, possibly re-stating old facts without bringing forward anything new, and grateful if I succeed in crystalizing views more or less loosely held, perhaps even by myself.

The subject is well delimited by the title, which divides it into two parts, first *when*, and then *how*, to give up the restricted feeding necessary during the active stage of the disease, about which, of course, we have nothing to say here, and begin normal diet.

Perhaps I might better have begun my homily, as is usual, with a text, and it would be the dictum of the old French physician, whose name I have unfortunately forgotten, that convalescence from typhoid is a second disease. By this he meant, of course, that in all cases of typhoid which proceed to recovery, a point is reached when one must sit down and completely re-write one's orders as to food, medicines, and management, after which the patient has still a period of some weeks in prospect before complete recovery.

This brief paper is meant to contain if possible a few directions for the proper determining of that point in the disease. Perhaps one

should first ask what are the dangers apprehended from an unwise change of diet. They are, of course, relapse, recrudescence, perforation, hæmorrhage, meteorism, etc. The term "relapse" perhaps needs definition and brief discussion. A relapse may be defined as a return of fever:

(*a*) Not due to a complication, *e.g.*, Phlebitis

(*b*) Not a simple recrudescence, as from excitement, exertion, constipation, too much or too early feeding, but,

(*c*) Accompanied by two or more features of the regular attack, such as re-engorgement of the spleen, fresh rose spots, and the characteristic temperature curve, with sometimes, a Widal re-action which had not been previously obtained.

To be properly called a relapse this should occur after a definite interval of normal temperature of at least twenty-four hours, sometimes even of a week or longer. The cause of any given relapse is, of course, intimately bound up with the intricate and as yet ill understood questions of immunity, the development and persistence of antibodies, the bactericidal qualities of the blood, and the destruction of the specific endotoxins. To quote from the monumental article of Thos. McCrae on typhoid in the second volume of Osler's Modern Medicine:

"Durham has suggested the most satisfactory explanation. Infection is the result of the action of a sum of a number of infective agents which are similar, but not identical, so that there may be a number of varieties and sub-varieties. If the members belonging to different varieties are nearly equal, we have a normal infection in which no unit predominates. Each is affected equally by the anti-bodies, and no relapse results. However, if one variety predominates we have an abnormal infection, and there may be but small protection against one form, which may begin to multiply rapidly, and cause the second infection. In connection with this the finding of both the typhoid and paratyphoid bacillus in the one patient may be noted."

The simpler older views are not sufficient explanation; for instance, that relapse is due to a simple re-infection from spleen, mesenteric glands, or especially from the gall-bladder, in which case it was taught that the early giving of solid food caused relapse, by causing an increased flow of highly infected bile, or acted as an irritant to unhealed intestinal ulcers. The whole matter, however, McCrae says, is so involved with the difficult problems of immunity that much must be left for future explanation.

Naturally, in determining the time at which typhoid diet may be departed from and normal diet resumed, each case must be considered

on its own merits. One must seriously bear in mind general considerations, such as the condition of the patient's health prior to the onset of his illness; the constitution, the stamina, the nervous stability, and ordinary physiological processes of the patient; the severity and duration of the attack; the existence of complications and their character, whether symptoms and complications were mainly nervous or digestive or circulatory; the course and progress of the disease as a whole; the degree of emaciation and exhaustion; the probable duration of convalescence; and the rallying power of the patient. Thus, to contrast two cases such as are familiar, of course, to all of us, let us suppose first, a boy of 20, robust, with acute attack, temperature reaching a fastigium of 103° F. in three or four days, and declining typically in twelve to fourteen days, no complications, not severe emaciation, stable nervous mechanism, early return of appetite with clean tongue and steady normal or sub-normal temperature. Over against him let us set case No. 2, a patient of, say, 48, a free liver, with six or eight weeks of illness, marked by variations and recrudescence, severe nervous symptoms, and perhaps marked diarrhœa, or tympany, or hæmorrhage. I need not remark on the need of marked differentiation of management in these two cases, when it is proposed to feed as for convalescence.

Apart from these general considerations, which would lead us far astray and beyond our time limit if further discussed, there are three particular points which I should emphasise as factors in determining the resumption of normal feeding.

A. The state of the tongue.
B. The condition of the spleen.
C. The temperature curve.

First, as to the tongue, I think there can be no question that if the tongue clears early and well with the decline of temperature, and particularly if appetite returns with the clearing of the tongue, solid nourishing food may be safely resumed at an earlier date than if appetite lags, and the tongue clears slowly. I think that I have noticed too that a tongue which clears early at the centre becomes clean more rapidly and permanently than if the clearing process begins at the tip and edges, a statement which holds good in all acute disease, as well as in typhoid.

As to the second of the indications which I mentioned, the spleen, it is well known that the bacilli are always present in the spleen, and large numbers, and a spleen which remains large after the temperature has begun to decline is a distinct danger to the patient as regards

the possibility of relapse, so that while any enlargement of the spleen could still be detected, I should hesitate to resume normal feeding. Just in what way early and injudicious feeding can cause the engorged spleen to flood the blood with fresh bacilli, or otherwise cause relapse, I do not pretend to say, as I do not know, but the clinical evidence is too abundant, and the general consensus of professional opinion the world over too unanimous, to make it possible to dismiss with a *post hoc ergo propter hoc* the view that unwise early feeding does cause relapse.

With regard to the third point—the temperature—my view has come to be that in a case in which the temperature declines regularly in three or four days to normal, and remains normal or sub-normal for four or five days, if the tongue is clean, and the spleen no longer discoverable, normal feeding may be safely, though carefully resumed; whereas with a temperature which declines to normal as above described, but continues for days or even for two weeks rising to 99° F. or 99.4° F. during some part of the day, the patient must still be kept on a rigorously restricted diet for fear of relapse. Of course, one would not here discuss those cases of prolonged slight elevation, which turn out to be really cases of starvation fever, in which the temperature becomes normal, as soon as sufficient nourishing food is given. One must, of course, too, exclude most carefully any complication such as phlebitis, bone lesion, cholecystitis, or concealed suppuration.

The second of our two main heads is, having set a time *when*, to determine *how* to add to the patient's diet list, and this I shall treat very briefly, without troubling you with the details and lists of food stuffs to be seen by anyone in any text-book. One general principle to be laid down is that, as in infant feeding, change should be gradual, and the diet of the active stage of the disease be only very gradually discontinued. Thus, once only during the first day of additional diet one may give, say, a small slice of milk toast, or small baked custard, or coddled egg, the results being carefully noted before proceeding further. A second general rule widely advocated seems to be that farinaceous rather than proteid food stuffs should be first given. Fagge says, "No solid food should be given for a fortnight after fever and diarrhœa have ceased," which is, I think, rather extreme ground according to the present views, except in very severe cases. Osler states that meats given early are apt to disagree, or cause *febris carnis*. I must say that while not venturing to controvert such a distinguished authority, I would apply this rule only to cases which have been of great severity. I have never noticed any ill result from the very early giving,

in mild cases, say, on the fourth day of normal temperature, of an ounce of well minced beef, underdone, as a *paté,* or a raw or nearly raw egg. One may at any rate use strong broths, perhaps identical with those given during the acute stage, but thickened with boiled rice, sago, mashed potato, green peas, vermicelli, etc. In a day or two the frequency of such feeding may be steadily increased, always providing that the temperature and other conditions are going on normally, and the "slops" of the active stage be withdrawn. Red meat juice well thickened with toast made in the oven and rolled into a powder, beef tea custard, made with one or two eggs beaten smooth to a cup full of red meat juice or beef tea, thickened by setting in a thin cup into boiling water, are favourite foods with me, as one objection to farinaceous foods is that they are usually served sweet, while the convalescent from typhoid, or any other acute disease, usually prefers salty and meaty foods. In mild cases at least, and when the stomach digestion is good, it would seem *a priori* that such things as meat jellies, raw oysters, sweetbreads, soft eggs, omelets, and rightly cooked chops and steaks, can be, if well chewed, taken with less prospect of indigestion and other ill results, than large amounts of vegetable or farinaceous foods, the digestion of which must fall largely upon the intestine, where the chief disturbance incident to the disease has occurred.

I am correct, I think, too, in saying that undue delay in the adoption of full diet prolongs convalescence needlessly.

In conclusion, I would venture to remind ourselves that it is only by attention to details and careful appreciation of the capacities and disabilities of each case that we can avoid mistakes. The physician who has carefully followed a case through the acute stage is best qualified to settle dietetic and other details of convalescence.

Permit me to close my paper, for your kind attention to which I am much obliged, by repeating that with which I began, that the three points on which I have come, rightly or wrongly, to lay most stress in determining when to resume normal diet, are, the state and behaviour of the tongue, of the spleen, and of the temperature at the time when mentioned, my desire being to make a small contribution to the subject normal is first reached, subject always to the general considerations from the clinical side, without any pretence at an exhaustive theoretical discussion.

RECTAL HYDROTHERAPY IN TYPHOID FEVER.

BY

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In looking over Dr. Thomas McCrae's exhaustive and admirable article on the treatment of typhoid fever in Osler's Modern Medicine, I observed that no mention was made of a form of hydrotherapy that has been in constant use in the Chatham hospitals for the past three or four years. The means adopted are so much simpler and less distasteful than the bath tub and so much more efficacious than sponging or the cold pack, and, apparently not in general use, otherwise it would have been referred to in the article mentioned, that I thought it well to bring the method to the notice of the profession.

The means I refer to are cold or ice water enemas administered every three, four, six or eight hours, according to the temperature of the patient, when the temperature is 102.5° or over. The method has none of the objections or drawbacks urged against the bath treatment, and, whilst probably not so effectual in cases of profound toxæmia or very high temperatures, in the large majority of typhoid fever cases the bath tub has not been required when the procedure is used. When both methods are used, as they have been in some cases, the patient infinitely prefers the enemas, in fact, they complain but little of the latter.

As with the baths the nervous symptoms, such as restlessness, delirium, muscular tremors, are remarkably improved, and if the enemas are commenced early, what is known as the typhoid state is rarely seen, even where the temperature is reduced but a little the general condition of the patient is improved.

The amount of urine is increased in quantity, more so than in bath treatment, pulse improves in character and falls in rapidity, and we have never noticed any gastro-intestinal disturbances. The temperature invariably drops from one-half to three degrees, and there is always an improvement in the condition of the patient's mouth.

This system of hydrotherapy is carried out systematically in all cases when the temperature is above 102.5°. The nurse has instructions to use an enema of cold water every three, four, and six hours as required. The temperature and nervous symptoms being the guide. From one to three pints of water is used according to the severity of the symptoms. If the temperature is not running high and there are no marked signs of involvement of the nervous system, water out of the tap is sufficiently cold, if, however, there are pronounced nervous symptoms and toxæmia, and the temperature is running 104° or upwards, ice water is given. Some patients retain the enemas better and longer than others. Where

it is retained for some time the fall of temperature of course is more pronounced. A stimulant is sometimes given while the patient has the enema.

Shivering frequently occurs, but one does not notice the blueness of the skin as when the bath is used. If the patient's temperature drops to 100°, which I have rarely seen it do, the patient is wrapped up in a blanket. The temperature in these cases require to be taken either in the axilla or mouth.

The contra indications are the same as in the use of the tub, haemorrhages, peritonitis, severe abdominal pain or other indications of perforation; I have never seen or heard of any unfavourable effects as the result of their use and they have been administered with great benefit for several years in mostly all cases of typhoid fever in our hospitals. Occasionally, in very severe cases, it will not bring down the temperature. In these cases the bath is used.

As regards mortality, one cannot judge accurately; when the procedure advocated fails, the bath tub has been resorted to.

We have an ideal tub in our hospitals, which runs easily and noiselessly on rubber wheels. It is the exact height of the fever beds, and from the upper rim on one side is a shelf on hinges and when open it passes to the bed. In removing the patient from the bed a coverlet is laid over the shelf.

The bath tub has a double bottom, the upper one being perforated and movable. By means of a lever a nurse easily moves it up or down. The perforated bottom is brought to the top of the bath tub and the patient is easily slid from the bed to the extended shelf, from the shelf to the perforated bottom, and then gradually lowered to the water. The rectal hydrotherapy, however, is so much simpler than the bath treament, and in so many cases equally efficacious, that I feel sure that any one using it will be pleased and satisfied with the results.

VASELINE OIL IN THE DRESSING OF THE RADICAL MASTOID OPERATION.

BY

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For some years past, the dressing of the mastoid operation has been done in several different ways. In 1902, Eeman of Gand, in his first communication to the Belgian Oto-rhino-laryngological Society, extolled

Read before the Surgical Section, Canadian Medical Association, Montreal, 1907.

the use of boracic acid. In the following year, he returned to the same theme, and reported statistics of thirty-eight patients treated by his method.

In 1905, Mahu of Paris, presented before the French Oto-rhino-laryngological Society a new procedure which consisted, not in packing the wound, but only in draining it by a strip of gauze placed upon the floor of the canal.

It is not my intention here to discuss the opinion of Laurens which, in certain cases, would make the dressing of the radical operation identical with that of trephining in simple mastoiditis. This would be going too far outside my subject, inasmuch as in the present communication I desire to speak only concerning epidermization and not concerning the filling up of the wound after operation.

All these different procedures are merely modifications of the classical German method which consists in bringing about the epidermization of the cavity by means of gauze packing.

During the month of June, 1905, it fell to my lot to perform the radical mastoid operation; and in spite of all possible care in the dressings, healing was long delayed. After having used without success all known procedures I fell upon the idea of making an entire change of method, and of replacing dry dressings by oily ones. The wound which I had been treating for more than six months was healed in ten days. Later I had, together with certain *confrères,* the opportunity of experimenting further with those oily dressings, and with no less success. In consideration of these facts, I feel justified now in laying down the following rules for this new method of dressing.

Radical operation is done as usual; but the surgeon should choose by preference an autoplastic procedure which will allow him to sew together the lips of the wound behind the ear; and especially so if he has not to do with a cholesteatoma. For complete hæmostasis the post-operative dressing should be slightly compressive; and iodoform gauze should be used. About the sixth day the gauze is taken out, and the wound is carefully cleaned with hydrogen peroxide; then dried with cotton. Little strips of plain gauze, about one and a half centimeters wide and six centimeters long, are dipped in vaseline oil, one end is introduced into the drum either by the canal or by the retro-auricular opening, and the other end remains outside the wound. The whole cavity must be carefully carpeted with this gauze, and the strips should overlap each other slightly. Upon the first layer, cotton is applied sufficiently saturated with liquid vaseline to be well packed in. In doing this packing, which must be fairly tight, it is necessary not to leave any dead spaces, so that to this end it is better to use little pledgets of

cotton. A great deal of care must be given to the external meatus and to the operative opening of the canal. It must be packed rather tightly, on the one hand to prevent any subsequent narrowing, and on the other hand to maintain the apposition of the flaps. When the cavity is well filled, the dressing is finished with dry cotton and a bandage. It is scarcely necessary to add that the vaseline, the oil, and the cotton should be sterilized, and that the surgeon should conform to the most careful asepsis. At first the dressings must be done every day; but when the secretion of the wound lessens and epidermization is going on normally, they may be done every second day. The dressings should be removed very slowly. Inasmuch as the strips of gauze sometimes stick to the skin, it is better to take them out by pulling from outsides inwards, after having moistened them with oil or with peroxid. Subsequently, the wound is cleansed with peroxid, carefully dried, and before replacing the dressing in the manner described care must be taken to see that no stray ends of gauze are left. In the presence of any possible complication one must act according to circumstances. The technique of the method, as may be seen, is easy.

Case Reports.

In March, 1905, Mr. M., 23 years of age, consulted me at the Hôtel-Dieu for a discharge from the left ear which had lasted two months. Upon examination I found a perforation of Shrapnell's membrane and a polyp taking origin in the attic. The removal of the latter was immediately done. In spite of this the discharge continued and the polyp recurred, even after a second operation. In April, I decided to perform removal of the ossicles with thorough curetting of the attic. The hammer and the incus were removed and the post-operative course was normal; nevertheless, the ear continued to discharge and the polyp again recurred. Towards the end of May, patient became a little feverish following a slight attack of mastoiditis. Evidently, there was still retention; the treatment was giving no result, and symptoms were increasing. In June I performed the radical operation. The antrum, the aditus, and the attic were found to be filled with granulations, due to the osteitis. Panse's autoplastic method was employed; the dressing was done daily, plain gauze being used with compression. At the end of four months, the cavity had skinned over with the exception of one recess in the floor of the drum which, during the succeeding month refused to heal. I then changed the dressings to boracic acid, and in spite of the small amount of powder insufflated retention occurred, and the patient grew worse. I then contented myself with cleaning the wound and leaving it to nature. A small crust formed

and the cavity suppurated. Being confronted with a total lack of success from these three methods used over a considerable period of time, there occurred to me the idea of using vaseline oil in the dressings, a method which brought about definite cure inside of ten days, a cure which has been maintained from that time to this.

The two following observations I owe to the kindness of my friend, Dr. Lasalle, to whom I had communicated this method, and who was so kind as to try it.

Sister L., thirty-two years of age, suffering from a double acute suppurating otitis media, influenzal in origin, lasting since January, 1905. In March, double mastoiditis which on the left side got well. On the right side trephining was done in April. Patient was scrofulous and the tissues in poor condition, so that the wound kept on granulating. Tonics were given internally. In April the cavity was still not filled up, the osteitis was persisting, and the radical operation was done, using Stacke's autoplastic method. The wound was dressed with clean gauze under compression. In the later course it had to be cauterized and scraped repeatedly on account of recurring granulations and slow epidermization; and in spite of tight dressings the cavity tended to close. The peri-tubal cells were causing osteitis, so that in December, 1905, a complete curetting was done; the former dressings were again employed but alternating later with those of other methods. One year later there still remained one-third of the wound to become covered with epidermis. Finally, dressings with vaseline oil were tried and definitely cured the patient.

Mrs. P., 36 years old, had suffered with a discharge from the right ear since her childhood. Following a coryza she had an attack of mastoiditis in December, 1906, and a sub-periosteal abscess. On the 22nd of December the radical operation was done. There was no cholesteatoma, but there was destruction of a large portion of the peri-antral cells and of the posterior bony canal. The dura mater and the lateral sinus were laid bare by the osteitis. The ossicles had disappeared as the result of the suppuration. The Stacke autoplastic operation was done, followed by packing with iodoform gauze. On the sixth day, the first dressing with liquid vaseline was done. By the commencement of January the cavity was beginning to skin over. On the 31st of January the epidermis had covered three-quarters (¾) of the wound. With the compressive dressings with vaseline oil, all narrowing of the cavity had been prevented, the patient suffered no pain; the wound did not over-granulate, and never suppurated. By the 14th of February,

the patient was completely cured, that is, after fifty-four days of dressings.

Discussion.

If now we take a rapid survey of the advantages and the disadvantages of these various procedures we shall see that:

The classical German method which consisted in gauze packing is very painful; moreover, it is impossible to fill up completely the operative cavity, and especially the drum. Inasmuch as these dressings irritate the tissues there are formed granulations which necessitate repeated scrapings and cauterization. Add to this the fact that treatment must extend over several months.

Upon the admission of Mahu himself, the procedure which consists in letting nature have her way and in simply draining the cavity, is applicable only when there is present simply osteitis. The operative cavity not being lightly packed, naturally the walls fall in, and this may occasion serious complications. Moreover, there is formed an excess of granulations which retard epidermization.

As to the method of Eeman, which seems to be most in favour with otologists, the same objection must be made to it as to the preceding method. In the absence of tamponning, the cavity has a tendency to close over, and the recurrence of cholesteatoma might even render necessary a second operation. Boracic acid more or less dissolved by the secretions of the wound forms an irritating paste and promotes excessive granulations. Finally, the pain of the dressings during the first three weeks has been alone sufficient to prevent many surgeons from continuing to use it.

With vaseline oil the surgeon is able according to his wish to allow the wound to close in by merely packing more or less tightly; or, on the other hand, to preserve the shape of the cavity such as it was immediately after operation. The granulations in contact with this aseptic fatty body are perfectly protected against all infection, and have no tendency to grow exeburantly or to suppurate. The epidermis formed is solid and extends quickly over the well prepared osteo-fibrous bed. No pain is felt at any time during the dressings. The patient whose history was last related was cured in fifty-four days. It would be easy now to secure complete healing in much less time by suturing the margins of the retro-auricular wound immediately after operation. I do not wish to discuss the value of Thiersch's skin grafts; yet the partisans of this method will find in vaseline oil after drying and freshening the wound one of the best methods of dressing for this small operation.

Among all the oily substances, I have concluded that liquid vaseline was to be used in preference to vegetable oils. We can get the same results, according to my experience, with other oils; for example, olive oil, and sweet almond oil; still, we know that these are often adulterated, and rapidly become rancid by a fermentation which changes them partly into oleic acid or other analogous acids; and they may thus become very irritating to the tissues with which they come in contact. Moreover, the least lack of asepsis is capable of making of them an excellent culture medium.

On the other hand, liquid vaseline has none of these disadvantages. It is a neutral mineral oil, and it does not change either with light or in the air; consequently, it does not become rancid. It is very stable, and can resist the action of the most energetic chemical substances; moreover, it cannot be infected. For three reasons, it is to be preferred to all other oils for this kind of dressing.

The small number of patients treated hitherto by this new procedure does not allow me to deduce fixed conclusions. The aim of this communication is rather to submit this method to my *confrères,* and to suggest that they should try it and later communicate the result of their personal experience.

In conclusion, I would remark that with vaseline oil dressings: 1, There is no pain; 2, the wound does not granulate; 3, epidermization proceeds rapidly; 4, the cavity retains, if so desired, the shape which it had immediately after operation.

A CASE OF PRIMARY BILATERAL MASTOIDITIS.

BY

PERRY G. GOLDSMITH, M.D., C.M.,
Toronto.

The clinical history of the case which I present to you at this meeting would, I think, be of sufficient interest to report if the title had been simply one of bilateral mastoiditis. Such cases are quite uncommon, but in this instance, it has associated with it features which suggest the use of the word *primary.*

I am well aware that primary mastoiditis is exceedingly rare, if one reports a case wherein there was not and never had been any infection of the middle ear. Infection may travel through the Eustachian tube into the tympanum and from there to the mastoid antrum. The resisting power of the mucous membrane of the tympanum may be sufficient to prevent any appreciable symptoms and a mild reaction pass unnoticed, while the infection leads to pus formation and necrosis in

Read before the Canadian Medical Association, 1907.

the pneumatic spaces of the mastoid. If I may be permitted to use the word primary to denote those cases where suppuration exists in the mastoid without, not only aural discharge but any symptoms denoting involvement of the tympanic cavity, then my title will hold good. One must not forget that cases of chronic middle ear suppuration occur in which no discharge appears externally, and, furthermore, cases long since healed may, during such diseases as scarlatina, measles, diphtheria, typhoid, tuberculosis, syphilitic and other systemic diseases have conditions associated with them which favour mastoid suppuration. I cannot do better than quote Blake Reik on the surgical pathology and treatment of diseases of the ear. "A careful study of the few cases of reported primary mastoid inflammation on record suggests, in the light of more recent experience in this field of clinical investigation, the suspicion that there had been previous middle ear inflammation as the inceptor of a chronic quiescent mastoid disease, which was later awakened by acute manifestations, while in others the implication of the mastoid cells possibly followed a superficial periostitis on the outer mastoid surface with pus formation, denudation of bone and subsequent spontaneous perforation inward."

Consultation with Dr. C. P. Lusk.

Lady, aged 61. Family and personal history unimportant. On the 4th of October was taken ill with what appeared to be a mild attack of Influenzal Grippe with a temperature of 101½—102, cough, aches and pains over body and mild catarrh of the bronchi. One week later she was taken with a chill and a pronounced rise in temperature to 104 degrees, depression marked and all the symptoms of a return to the catarrhal cold from which she had been suffering. It was considered a re-infection. The temperature dropped the following day to 99, pulse 86, respirations 20. The condition remained unchanged for the next four or five days, when she complained of a good deal of pain in the head, especially on the vertex and along the course of the posterior auricular nerve. There was no pain or pressure on the mastoid whatever and no aural discharge. Both membranes were quite normal and hearing not impaired. The external auditory canal along the posterior wall of the cartilaginous portion was quite tender. Four days later the pain in the vertex while persisting to some extent was associated with some tenderness over the mastoid, but was not different from the left mastoid; which had given no evidence of mischief. The patient was in a very nervous condition and it was difficult to say really how much pain she suffered and, as the other side was also tender, one naturally did not feel like relying too much on the patient's replies. The next day both walls of the external auditory canals were found

considerably swollen making an inspection of the deeper structures very difficult.

I now saw the patient and was able to elicit slight mastoid tenderness localized over the right antrum, some very indefinite tenderness over the left mastoid. Both meati were found much occluded by swelling, but I was able to see the drum and found nothing to record. Next day a very little pus was found in the external ear, but it came from the posterior wall of the canal and not from the tympanum. There was no perforation whistle on inflation. Temperature 99, pulse 72, respiration 20. The case was one really wherein one was asked to exclude the ear as being the cause of the frequent rise of temperature and the cause of so much depression and pain on the vertex. The absence of aural discharge; the absence of any symptoms of tympanic involvement made the question a difficult one. The condition of the patient was one of great concern, while the temperature did not go higher than 100, and pulse 88, the depression was very marked and increasing. It was then decided that the right mastoid should be opened. At the time of operation it was, so far as we could learn by aural examination or percussion or from the patient's symptoms, immaterial upon which side the operation was performed. As the right had previously been the most affected one it was taken.

You will therefore see that the operation was in not a few respects an exploratory one, and it was of little choice which side was operated. The right mastoid as being the worst, if any, was laid bare by the usual post aural incision. On chiseling into the bone over the antrum, creamy pus was found at a very short distance. The opening was enlarged and the mastoid was found to be of the diploeic type, and while there was not much breaking down of the intercellular walls there was moist extensive involvement of the cells. The point of great interest was noticed that the disease seemed to extend as it were through solid walls of bone infecting cells well beyond areas of hard, smooth bone. The tip cells were extensively diseased and no connexion could be made out between this area and the antrum. The same condition existed in the cells at the root of the zygoma. Owing to finding pus beyond areas of apparently healthy bone I considered it best to lay bare the lateral sinus as one had no way of knowing where the outside area of the infection extended. On removing the hard and healthy looking boundary of the sinus I found a collection of creamy pus over the vein—really an extra dural abscess—the venous walls appeared healthy, and there was no thrombosis of the sinus.

Owing to having found such an extensive suppurating focus with so little subjective symptoms I decided to open the other mastoid and this was immediately done, when an exactly similar condition was found, with the exception of an extra dural abscess; the sinus was exposed but no pus was found.

The antra lay very high on both sides, that on the left being one inch above the superior border of the external auditory canal and the right one-half inch above. I noticed particularly the presence of large cells along the post wall of the bony meatus which were extensively diseased and communicated with the ear canal. This accounts for the discharge in the ear canal the day previous to both operations. The additus and tympanum were left alone as there was no evidence of any disease there.

The pus was found to be of pneumonococcus origin. The healing of the cavity was rapid and uneventful. Beyond an excessive pale, straw coloured serous discharge containing pneumococci, which persisted for about a week or ten days, there was nothing to record. Dry dressings changed twice a week were sufficient. The patient regained strength somewhat slowly, and is now quite well with almost normal hearing.

MEDICAL PROTECTIVE ASSOCIATION.

During the convention of the Canadian Medical Association the sixth annual meeting of the Canadian Medical Protective Association was held, the president, Dr. Powell, of Ottawa, was in the chair. The chief business transacted had to do with a proposal to limit membership to those who were proposed and seconded by members of the association and who were also eligible for membership to the Canadian Medical Association. After some discussion, owing to the fact that several homœopathic physicians were now members, the motion was carried.

The report of the solicitor, Mr. F. H. Chrysler, K.C., showed that for the year ending in July last the association had not been called upon to defend any member. Since then one case has occurred, that of a member sued for ten thousand dollars on a charge of performing a major operation without consent of the patient.

The election of officers was then proceeded with and, with the exception of filling the place of two members of the Quebec Executive, the following were re-elected:—

Executive—President, R. W. Powell, M.D., Ottawa; Vice-president, J. O. Camarind, M.D., Sherbrooke; Secretary-treasurer, J. Fenton Argue, M.D., Ottawa; Solicitor, F. H. Chrysler, M.D., Ottawa.

Provincial Executive for Ontario—E. E. King, Toronto; I. Olmstead, Hamilton; D. H. Arnott, London; J. C. Connell, Kingston; J. D. Courtenay, Ottawa.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

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CANADIAN MEDICAL ASSOCIATION.

The annual meeting of the Canadian Medical Association was held in Montreal, from September 11th, to 13th, 1907. In many respects the meeting was the most important which has yet been held. The leading members of the profession were present, and they gave of their best. Toronto was particularly well represented by Drs. McPhedran, MacCallum, MacKenzie, Starr, Rudolph, Hunter, Ross, Goldsmith, Johnston, Wright, Primrose, Fotheringham, McMurrick, Graham, Young, Ferguson, Elliot, Hodgetts, Smith, Hart, Jones, Dickson, Chambers, Ryerson, McKeown, Aikins, Wishart, Reeve and Walters. Though the registration was not excessively large, members were present from every province in Canada.

Slowly perhaps, but surely, the annual meetings are becoming more national and more representative of the profession in Canada. It was

good to see the presidential chair occupied, not by a local nominee, but by a leader of the profession in another centre, worthily supported as he was in the work of the Meeting by many others from the same city. We would not say that this presidential interchange will always prove as successful as it was in this case. We can imagine that when the president hails from a greater distance, the want of his directing force in arranging the preliminaries would be felt by the local committee, but under certain circumstances, as in the present case, it must help to bring the profession together.

The president's address was comprehensive of all which such an address should contain, and Dr. Rolleston's address in medicine was, in matter and treatment, in the best manner of the London physician. Both of these appear in the present number. The reorganization of the Association and the establishment of a journal for the Association received thorough discussion and something substantial was done in both subjects.

Yet another advance to be chronicled is the inauguration and first sitting of the Laboratory Workers' section, to include all those engaged in experimental medical research. Both in quality and quantity the work presented by this section was admirable and the attendance throughout was larger. We are, indeed, informed that this was the only section which, from one or other reason, completed its programme, even though it did this by prolonging its sessions. There has been little work of this order presented hitherto at meetings of the Associations, with the result that the most advanced medical work in the country has been given to the outside world. This has not been creditable. We admit that, as stated by Dr. Adami in his address in Pathology, it is good policy that Canadian work should be published, in part, at least, in Great Britain and the United States, and we acknowledge the generosity, with which papers by Canadian workers, have so been published; but it is not Chauvinistic to hold it wise that the home products should be displayed before those at home.

The members of the Association need have no fear that the publication of this work will render meetings less popular with the general practitioner. That has not been the experience in connexion with the American Medical Association. Those men who are most keen in their professional work are those who are most keen to attend the annual meetings of the Association, those men it is who appreciate no banalities but serious studies of the most recent advances in their subject. Altogether the meeting was one full of good hope for the future. The next meeting will be held at Ottawa, under the presidency of Dr. Montizambert.

The following is the result of the election of officers:—General Secretary, Dr. George Elliott, Toronto; General Treasurer, Dr. H. B. Small, Ottawa; the two latter being re-elected. Provincial Vice-Presidents: Prince Edward Island, Dr. Alex. McNeil, Summerside; Nova Scotia, Dr. M. A. Carry, Halifax; New Brunswick, Dr. Ross, Sackville; Quebec, Dr. F. R. England, Montreal; Ontario, Dr. W. H. B. Aikins, Toronto; Manitoba, Dr. Harvey Smith, Winnipeg; Saskatchewan, Dr. Kemp, Medicine Hat; Alberta, Dr. R. D. Sansom, Calgary; British Columbia, Dr. C. J. M. Pearson, Vancouver. Provincial Secretaries: Prince Edward Island, Dr. R. D. McLaughlin, Morell; Nova Scotia, Dr. R. S. Mathers, Halifax; New Brunswick, Dr. J. V. Anglin, St. John; Quebec, Dr. A. H. Gordon, Montreal; Ontario, Dr. Hackney, Ottawa; Manitoba, Dr. Gordon Bell, Winnipeg; Saskatchewan, Dr. R. J. Kee, Esterhasy; Alberta, Dr. Dow, Calgary; British Columbia, Dr. Eden Walker, New Westminster. Executive Council: Dr. R. W. Powell, Dr. E. B. Echlin, and Dr. G. Gibson, all of Ottawa.

HALIFAX MEDICAL COLLEGE.

Dr. N. E. Mackay has resigned his position as professor of surgery in Halifax Medical College. In a letter to Dr. A. W. H. Lindsay, chairman of the committee, dated May 14th, he gives as the ground of his resignation that he "refuses to teach surgery if men are associated with him in that chair, who are unworthy of confidence and respect because of their want of knowledge of this subject." This is tolerably plain speaking, and not liable to be misunderstood.

In the letter referred to Dr. Mackay made other observations equally pointed: "The work of the College needs toning up all round and the standard of work raised a good deal if we hope to have more than empty benches to lecture to. In making appointments, merit and natural aptitude for the work which is expected to be done alone should count. The fact that a person was on the teaching staff for a number of years, should go for nothing unless the applicants are of equal merit, in which case he should have the preference. On the other hand, if he had been a failure as a teacher, it should count against him. Each chair should have a responsible head and no appointment should be made in connexion with the teaching of his subject except on his recommendation. The abominable ring-system which heretofore regulated appointments and brought the College to its present unsatisfactory condition, should receive decent burial."

This letter was published by Dr. Mackay in the *Halifax Morning Chronicle* of September 2nd, along with much other printed comment.

He remarks that the graduating class last year numbered only four persons, though thirteen had begun their studies, and describes the real trouble as due to a "lack of practical teaching in important subjects, appointment of men who do not continue to be students after receiving their degrees, men of no enthusiasm in their work, or of no aptitude for teaching."

A somewhat acrimonious correspondence followed in the newspapers, all of which makes painful reading. Leaving out of account all local and personal circumstances, the experience of Halifax Medical College is not unusual. The medical school without ample endowment, large scientific equipment, and extensive hospital facilities, has fallen on evil times. In the old days the possession of a lecture room and a few bodies were considered sufficient warrant for carrying on the teaching of medicine, and many excellent practitioners issued from that system with profit to themselves and to their teachers. To-day the teaching of medicine is impossible without a large subvention from the state or from private munificence. It costs McGill University $1,650 to graduate a student of medicine, and it receives from the student only $575 in return. Bishop's College was astute enough to foresee the changing condition of affairs, and entered into an arrangement with McGill by which it was relieved from a burden which in time would have grown intolerable.

The only hope for the smaller medical schools is that McGill has raised its requirements to five years, and Toronto will follow next session. No one contends that this is too much, but there are always students who will be content with the second best. These will seek the smaller schools and give to them a renewed though temporary lease of life. Halifax may take courage from what has happened in Kingston where, in a city of 17,000 inhabitants, with corresponding hospital facilities, there are registered this year 230 medical students.

THE MEAT INSPECTION ACT.

The custom prevailing among farmers throughout Canada of slaughtering animals, particularly swine, upon their own premises and selling the dressed carcasses on the local market, is one which entails more or less loss to the producer. Before the advent of packing establishments, the domestic trade was supplied by the local butchers, who were necessarily compelled to provide for future supplies, and, as a result, the local markets were created. Conditions have changed however, the local dealers no longer supplying the domestic trade, which

has passed into the hands of the packing houses, which are now the distributing centers for meats. Packers can afford to, and actually do pay higher prices and sell at lower values than the local butchers for reasons which are obvious when one considers that profits are represented by the by-products. The packers are adverse to buying dressed carcasses as they represent smaller profits in by-products; again, dressed carcasses are imperfectly handled by the farmer, the meat in many cases being bruised and unsightly, this, as well as improper chilling, being deterrent to good prices. Animals, especially hogs, require scientific chilling, otherwise those parts which enter into the process of curing become sour and unfit for market. Packers prefer to buy their meats on the hoof, and for the reasons set forth above, are able to pay higher prices for them.

In view, however, of the large trade carried on in some parts of Canada, more particularly during the fall and winter, in dressed pork, as well as in other dressed meats, attention may be directed to one of the requirements of the regulations made under the new Meat Inspection Act, which is likely to have a considerable effect on the business above referred to. The Department of Agriculture at Ottawa having assumed the responsibility of inspecting and practically guaranteeing the healthfulness of all meats and meat products sent out by the packing houses, must, of necessity, protect itself by making sure that no diseased carcasses are permitted to enter these establishments. The most effective way of preventing the entry of such diseased meat is, of course, the careful ante-mortem inspection provided for by the regulations, but, in view of the large trade carried on in dressed carcasses, and of the fact that both farmers and packers have been in the habit of handling meats in this way, the officials in charge of the enforcement of the Act have decided to admit to the establishments under inspection, dressed carcasses under such conditions as will enable them to judge with reasonable certainty, as to whether the animal, prior to slaughter, was free from disease. Provision has therefore been made for the admission on inspection, of dressed carcasses with the head, heart, lungs and liver held by their natural attachments, such carcasses to be inspected before entering the establishment and, if found fit for food, to be so marked and admitted for packing purposes, while if found to be diseased, to be condemned.

This being the case it is incumbent upon every farmer bringing dressed hogs or other animals to market to remember that unless the carcasses are dressed in accordance with the regulation mentioned above,

namely, with these organs left in their proper positions, it will not be possible for the representatives of the packing houses to buy such carcasses for use in any of the establishments coming under the operation of the Meat and Canned Foods Act.

The presence of the buyers or agents of these establishments on our local markets has always been, at least to some extent, a safeguard against possible attempts by local combinations of butchers and others to depress the price of dressed meats, and it will be well for producers to bear in mind the new conditions, and when, for any reason, unable to market their stock on the hoof, as they should undoubtedly do whenever possible, dress their hogs, as well as other animals in such a way as to meet the requirements of the new Act.

A CANADIAN MEDICAL JOURNAL.

Whatever competition may be in trade, it is the death of medical journalism in Canada. With a population of 6,000 physicians there are seven journals published in English and three in French. If every physician subscribed to a journal, which in itself is a presumption, that would yield for each 600 subscribers. Probably an average of 400 would come nearer the mark. The result is that the existing journals are local in their influence, and are obliged to look to advertisers for a patronage. Persons who write papers desire to have them read, and with the best will in the world towards Canadian journals they feel obliged to seek publication either in England or the United States. This is a loss to medicine in Canada.

The Canadian Medical Association has adopted a new constitution, which embraces all the local and provincial medical societies. It is about to become a national affair and promises to enter upon a wide field of usefulness in all matters pertaining to the profession and the public health. The transactions of so important a body should be recorded, and there is at present no adequate means of doing so. There is not sufficient inducement for any of the existing journals to engage in so laborious and costly an undertaking.

At the last meeting the principle was adopted of publishing a journal of the Association, and a committee was appointed to report upon the feasibility of the project. This committee is composed of Dr. J. F. Young and Dr. F. N. G. Starr, Toronto; Dr. Murray Maclaren, St. John; Dr. O. M. Jones, Vancouver; Dr. John McCrae and Dr. Andrew Macphail, Montreal. These several members are experienced in the publication of Medical Journals and, indeed, four of them are actually

so engaged. They may be trusted not to make too light of the difficulties which lie in the way of a journal which will speak for the whole profession; but we cannot refrain from expressing the hope that they will approach the question with an open mind and not in the spirit of that Demetrius the silversmith who saw that his craft was in danger. It appears to us that there are several methods by which the result might be accomplished. All the existing journals might merge their interests in one national publication. Failing this, one or more of them, if not all, might unite and place their equipment at the disposal of the Association. Finally, the Association might see its way to establishing an entirely new journal. We have no doubt that all these possibilities will be considered by the committee and that the Association will be advised wisely and disinterestedly.

THE TROUBLES OF AN HOSPITAL.

There is much internal trouble in the Victoria Hospital at Fredericton. The latest bulletin is that the nurses have gone on strike and threaten "to walk out in a body" unless the matron is discharged. They complain that the food is bad and that the cook, when remonstrated with, applied opprobrious epithets to them. An investigation was held "which lasted till midnight," at which the trustees, medical staff, matron and nurses were present. Dr. Atherton charged that the matron had praised Dr. Vanwart to a patient and said he was "great on appendicitis." To this the matron "gave a lengthy explanation." The nurses desired to make a statement, but they would not make it in presence of the matron, and she consented to retire. This statement was an extremely painful one. The nurses complained that the appearance of the table-maid was not attractive, and that she would enter into the conversation going on at dinner. That, of course, is intolerable. Bitter complaint was made of Charlie Wagley, who was described as "a deceitful, saucy, bad boy, too familiar in his manner towards the nurses, even going so far as to call them Smithie, Brownie, etc. His language was said to be very profane, and he would lie in bed mornings while the junior night nurse made the kitchen fire." The maid above-mentioned was also charged with matutinal sleepiness, which shows, if true, that maids in New Brunswick have the same vice as they have in Montreal. From the newspapers which reach us the trouble appears to be one long standing. As long ago as August 26th the *Gleaner* contained an elaborate account of the circumstances under which Dr. Atherton resigned from the hospital; but it appears from

the St. John *Sun* of the following day that he "got over his huff" and consented to continue his service. The whole affair is deplorable and we counsel peace in the interests of the public and of the profession.

Reviews and Notices of Books.

DISEASES OF INFANCY AND CHILDHOOD. By LOUIS FISCHER, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals. With 303 Text Illustrations, several in colours, and Twenty-seven Full-page Half-tone and Colour Plates. 979 Royal octavo pages. Extra cloth, $6.50, net; Half-morocco, $8.00, net. *Sold only by subscription.* F. A. Davis Company, publishers, 1914-16 Cherry Street, Philadelphia.

The subject of Diseases of Infancy and Childhood has been divided into twelve parts. Section I. deals with the new-born infant, being devoted to hygiene and what the author terms diagnostic suggestions. Section II. deals with the abnormalities and diseases of the new-born. The important subject of prophylaxis and treatment of the eyes of the new-born is dismissed in less than one page, a good portion of which is taken up with the illustration of an ordinary eye dropper, while the rare condition of fœtal icthyosis receives a full page illustration and a page and a quarter of letter-press. Hæmorrhagic diseases of the new-born are dealt with in a little over two pages. In speaking of asphyxia neonatorum the author states that one of the main causes is "compression of the cord in a *natural* way"; just what is meant is rather difficult to understand. He does not once mention Schultze swinging method, and seems to place great reliance upon hypodermic injections of various remedies, recommending in this connexion 1-100 of a grain of strychnine, which seems an enormous dose of this drug for a new born infant.

Section III., which is one of the longest in the book, deals with the important subject of feeding in health and disease. Knowing the author's previous work in this subject, which has gone to three editions, one naturally expects a full discussion, nor is one disappointed. There is an enormous mass of heterogenous information upon the subject of infant feeding, which has been gathered from many sources, and is compiled with very little effort at arrangement. The result is that after reading through the section, one has but a hazy idea of the subject. The author deals first with woman's milk, and then with cow's

milk. He suggests the use of cocoa to modify the curd in milk, and thinks it is a food of highly nutritious quality. Where milk is not well borne the addition of one or two teaspoonfuls of cocoa, properly sweetened, to rice water, is recommended. He seems to prefer home modification to the use of laboratory feeding, and quotes freely from Holt, Rotch, and Chapin. It cannot be said that he has added anything that is new or important to the subject.

Section IV. deals with the diseases of the intestinal tract and to those diseases associated with the improper nutrition. He considers that, in convalescence from typhoid fever and pneumonia, there is no better stimulant for children than coffee administered in small doses, to which large quantities of milk or cream are added. The arrangement of this section leaves much to be desired, and the classification seems to be somewhat original. On page 243, under the heading of "Pathology of Acute Gastric Catarrh," the following paragraphs occur, "When gastritis is met with in older children, the origin of the trouble can be easily traced to over-eating, especially cakes, pies and puddings, too rapid chewing and swallowing of unmasticated pieces will aggravate an attack of this kind." Again, "It is quite common to have, especially among the working class, distinct evidence of alcoholic gastritis. Unwholesome food, candies and ice cream have frequently caused acute gastritis in many children." One would like to know what the author understands the word Pathology to include.

Ten and one-half pages are devoted to the bacteria of the intestines, most of which consists of quotations from the work of Booker. Diarrhœa is discussed in two pages, and the reader is referred to the chapter on acute milk infection. In the treatment of the latter condition the author places great reliance on irrigation of the bowel. There are two large illustrations, marked original, of the method of washing out the stomach of a child, who looks to be about seven or eight years of age. The child is lying on its back with its head on a pillow, though how it is kept in that position, as there is no one holding him and no evidence of strapping, it is difficult to conceive, as, in the experience of the reviewer, stomach washing in children of this age is a matter of considerable difficulty, on account of the struggles of the child. The author in discussing appendicitis seems to place great reliance upon the examination of the blood as giving the important aid in diagnosis and in deciding the proper time to operate. He argues as follows:

"Leucocytosis means pus-abscess; leucocytosis, stationary, that the abscess is walled off; leucocytosis increasing, spreading abscess; leucocytosis, declining, favourable course. From which we conclude that a

steadily increasing leucocytosis is a bad sign—operate; while a steady decreasing leucocytosis is a good sign—don't operate."

The chapter on Rachitis is excellent and contains some interesting illustrations. Keller's Malt Soup is recommended in the treatment of marasmus.

Section V. deals with diseases of the heart, liver, spleen, pancreas, peritoneum, and the genito-urinary tract. The discussion of diseases of the heart leaves much to be desired. Section VI. deals with diseases of the respiratory system and is inadequate. Section VII. on the infectious diseases consists of 253 pages, and is by far the best portion of the work, as it is evident that the author has devoted particular attention to this department of pediatrics. He ahs classed pneumonia under the infectious diseases and has applied the term "cerebral pneumonia" to that type of the disease in which the meningeal symptoms are the chief complication, and in which clonic spasms or convulsions are usually present. The extensive histories of two cases are given.

In the treatment of pneumonia the author urges that the patient be isolated as strictly as a case of diphtheria. He suggests that very small doses "only 1-200 or 1-100 of a grain of strychnine" may be given every hour without fear. The author gives no indication as to what age the patient should have reached to stand this somewhat heroic dosage of strychnine.

The author speaks of an acute tuberculosis as being very frequent in young children. He states that the majority of cases of tuberculosis are found in children brought up by artificial feeding. The author examined 5,000 children at random in his clinic in New York and found 59 cases which showed distinct evidences of pulmonary tuberculosis; only nine of them showed the presence of tubercle bacilli in the sputum.

The chapter on diphtheria is one of the most interesting in the book, and the author quotes liberally from the extensive literature on this subject. He considers that no form of diphtheria is more fatal than the nasal variety. He thinks that all cases of follicular tonsilitis should be isolated and dealt with as cases of true diphtheria until a culture has been taken and examined. The author gives a list of 479 cases of diphtheria in which antitoxin was injected, 32.08 per cent. of which developed rashes. The rash is usually fully developed on the second day after injection of the antitoxin, and is usually present on the chest, abdomen and buttocks. It is frequently accompanied with intense itching and occasionally with pain in the joints. The author states that between 10 and 30 per cent. of all cases of diphtheria are followed by paralysis and that this complication is most frequently found in

children between two and six years. The dose of antitoxin for a child between one and five years old, with a mild form of diphtheria, should be from 1,500 to 3,000 units. In severe laryngeal diphtheria at least 10,000 units should be injected at the first dose, and if no improvement follows in twelve hours the initial dose should be repeated, in any case. The author prefers the dorsal position for intubation. He has frequently intubated in this position without an assistant. He quotes extensively from O'Dwyer's article on intubation.

He divides scarlet fever into the simple, septic, and toxic forms. In 20 per cent. of his cases middle ear disease developed. Hot saline injections are recommended to stimulate diuresis in scarlet fever and also the use of anti-streptococcus serum.

Section VIII. deals with the diseases of the blood, glands, and ductless glands. Strangely, the author includes the subject of mumps in this section instead of taking it up as one of the infectious diseases. Section IX. deals with the diseases of the nervous system. Section X. deals with the diseases of the eye, ear, and skin, and abnormal growths. In Section XI. he discusses diseases of the spine and joints. Section XII. is entitled "Miscellaneous," and includes a dietary, a chapter on milk, and remarks upon the examination of the gastric contents in children, the urine, bacteriological memoranda, anæsthetics and rectal medication. The work concludes with a table of doses which, strange to say, are chiefly in the metric system, though throughout the course of the work the author has followed the ordinary English system of weights and measures. An extensive index which is particularly necessary in this work is fortunately provided.

The style of the author is involved and his use of the English language is at times original. For instance, in the opening chapter he employs the following sentence, "The blood vessels of the umbilical cord, which have nourished the child and connected it with the circulatory system of the mother, rapidly atrophy as soon as breathing is established." Surely he has made a mistake in the following sentence, "*A drop* of laudanum on absorbent cotton placed in the *middle* ear seems to act well in most instances." The paragraphing is bad, and as a whole, the work requires careful editing.

As a text book this work cannot be commended, but it may be said that it contains a large quantity of useful information upon the subject of diseases of infancy and childhood. The publisher's work has been well done; the illustrations and letter press leaving nothing to be desired.

KEENE'S SYSTEM OF SURGERY. Vol. II. W. B. Saunders & Co., 1907.

The second volume of Keene's Surgery corresponds in subject matter largely with the third volume of Bryant and Buck's System. While not wishing to institute comparisons it must be said that the purely American and Canadian work of Bryant and Buck compares very favourably with the other, which is advertised as being of International authors; as a matter of fact, in the present volume none but American authors appear. The chapter on diseases of the bones is by Nichols of Boston, who has become more or less an authority on the subject. What there is of it is good, but it is sadly short and the illustrations are not up to the highest standard. The chapter on fractures, by Eisendrath of Chicago, is, on the whole, excellent; the illustrations are very numerous, are up-to-date, and occasionally a little superfluous as the fashion now is. The chapter on the surgery of the joints is by Lovitt and Nichols, and here again one has to complain of the inadequate space given to a subject in a system which proposes to be a very comprehensive one. The chapter on orthopædic surgery by Lovitt is good; the illustrations, so necessary in the proper presentation of the subject, are abundant. The last few chapters in the volume are devoted to a consideration of the nervous system. Spiller writes a very excellent chapter on the pathology of the nervous system and its surgical bearings. Spiller having written it, it must be good. Wolsely of New York takes up the surgery of the nerves and later of the spine. His description of the late operations for facial paralysis and the work of Clarke, Taylor and Prout, on brachial birth palsies, deserves special mention. In the surgery of the spine we find an excellent and scientific presentation of the subject. Wolsely's own experience with spinal tumours has been considerable and he speaks with authority. Surgery among the insane is given a special chapter, the author of which is DaCosta. Surgery in its relations to traumatic neurasthenia, hysteria and insanity is written by Dercum. One good thing about the volume, a point in which it excels the Bryant and Buck work, lies in the appending of good bibliographies to the end of each chapter.

E. W. A.

THE AMERICAN PRACTICE OF SURGERY. Vol. III. Edited by JOSEPH D. BRYANT and A. H. BUCK. William Wood & Company, 1907.

This is the third volume of the new system of surgery which is to be completed in eight volumes. The first two have previously been reviewed in these columns and the favourable comment there expressed can only be repeated here. The illustrations, upon the whole, are numerous and very well executed. The first chapter is taken up by the consideration of poisons and poison wounds. The presentation of

the subject of tetanus, though correct and up-to-date as far as it goes, seems to us decidedly inadequate. The work of Meyer and Ransome along the experimental line, and of Rogers of New York on the clinical side is not mentioned. On the other hand rabies is extremely well presented by Rombaud, the director of the Pasteur Institute in New York. The chapter on fractures is by Eve of Nashua and, on the whole, it is a good practical article, although the pathology and the pathogenesis of the subject is somewhat insufficiently considered. The treatment by mechanical means it seems to us is given perhaps a little inadequately, but on the whole, criticism must needs be carping to find very great fault with it. One is glad to see the subject of patellar fractures and of injuries through the malleoli given their proper consideration. One occasionally notices a bibliographical error in the mention that von Bergmann states such and such a thing, while in reality such a statement merely occurs in his system of surgery. The chapter on pseudarthrosis, by Turner Thomas of Philadelphia, is good. One is pleased to see that the two chapters in the book by Canadians are especially creditable. The late Dr. Peters of Toronto writes upon the inflammatory infections of bone. His presentation of the subject is characterized both by sound scientific knowledge of the subject in its most modern aspects and by an English style which it is pleasant to read. The valuable recent work of Lexer upon the circulation in bones, with reference to inflammatory processes, is given full consideration and one of Lexer's beautiful injection specimens is reproduced; his original illustrations are numerous and suitable. The chapter on the non-inflammatory affections of bones is by Roswell Park of Buffalo and, needless to say, it is excellently well done. Simmons of Boston writes an exhaustive chapter on tumours of bone. Painter writes upon the non-tuberculous and non-traumatic affections of bone and the work is good and especially well illustrated. The second Canadian writing for the System is Primrose of Toronto, whose subject is bone and joint tuberculosis; it is an excellent piece of work, alike in the reading matter and in the illustrations, most of which are original. As a whole, the volume is highly to be commended.

E. W. A.

THE CLIMATIC TREATMENT OF CHILDREN. By FREDERICK L. WACHENHEIM, M.D., Chief of Clinic, Chidren's Department, Mount Sinai Hospital Dispensary, New York. Rebman Company, New York. Price, $2.50.

The first half of this book is taken up with a description of the climate of North America in general, with special accounts of those regions which are generally recognized as health resorts. Canada is

by no means neglected, although our winter climate is regarded by the author as too severe for most children. He also draws attention to the general lack of provision for health seekers among the towns and villages of the St. Lawrence Valley. He recognizes some half dozen honourable exceptions however, and we are glad to find Montreal among those mentioned.

Facts are given with regard to the temperature, humidity and elevation of many regions to which one might contemplate sending ones young patients. European resorts receive some attention, although they are very properly discussed more briefly than those of our own continent.

The last half of the book deals with the climatic treatment of well and sick children, and the author seems to speak with an authority that proceeds from knowledge. European authors are frequently quoted, but where they recommend European health resorts, the author usually suggests an American equivalent. The book is well conceived and well written, and will, we think, be found very useful.

Food and Hygiene; an Elementary Treatise upon Dietetics and Hygienic Treatment. By William Tribbles, LL.D., L.R.C.P., M.R.C.S., L.S.A., Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc. Rebman Company, New York. Price, $3.00.

This book presents a great mass of materials culled from various sources on foodstuffs, waters and climates with their application to the preservation of health and the cure of disease. One finds here a rather useful collection of facts about the source, projects and chemical composition of the various foodstuffs. Many details are given which one might find considerable difficulty in obtaining elsewhere.

The early chapters are devoted to a somewhat antiquated account of digestion and assimilation. The last third of the book gives a fairly good account of the use of food and various hygienic measures in the treatment of various diseases. The appendix contains some useful tables of standard dietaries and of the fuel value and composition of a very large number of different foods. It also contains brief accounts of salt free and purin free diets.

On the Evolution of Wound Treatment during the last Forty Years. By Sir Hector C. Cameron. Glasgow: James MacLehose & Sons, Publishers to the University, 1907.

This is a book of a class now rapidly disappearing in which a medical subject is treated in a literary way. It is more than a history of the

evolution of knowledge of the treatment of wounds; it is full of a criticism which has arisen out of the author's experience of surgery during the past thirty years. This little book is sweet to the reviewer's taste.

THIRD ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT AND PREVENTION OF TUBERCULOSIS: Feb. 1, 1905, to Feb. 1, 1906. Edited by JOSEPH WALSH, A.M., M.D. Published by the Henry Phipps Institute, 238 Pine Street, Philadelphia, 1907.

The third annual report is a volume of more than 400 pages, to the composition of which some thirteen authors lend their assistance. The report deals with the figures of previous years and 655 additional new cases, and it is most exhaustive with reference to the use of serum. L. F. Flick says that the serum of Maragliano, according, at least, to their method of using it, has not been satisfactory, although they propose to continue its use for some time. A statistical study of the influence of the Institute on the death-rate of Philadelphia indicates that, in a general way, a reduction of death-rate from tuberculosis has occurred in the vicinity of the Institute, which is attributable partly to the distribution of material aid therefrom.

The report is a very interesting volume for one who is concerned with tuberculosis and its problems. Sixteen formal papers dealing with different questions and with statistical studies are embodied in it.

PRACTICAL FEVER NURSING. By EDWARD C. REGISTER, M.D., Professor of the Practice of Medicine in the North Carolina Medical College; Chief Physician to St. Peter's Hospital; editor of the Charlotte Medical Journal. Illustrated. Philadelphia and London. W. B. Saunders Company, 1907. Canadian agents, J. A. Carveth & Co., Toronto, Ont. Price, $2.50.

We are not entirely in accord with the idea that prompts this work, for as we have pointed out in these columns before, we are nowadays asking too much of our nurses in the matter of medical knowledge. Let it not seem that we do not wish the best-educated nurse that is possible: but we venture to say that there is much in this book that the best-trained nurse will entirely fail to understand: the author forgets the gradual process of years of study by which he has come to understand much of it himself, and it seems to the reviewer that he is laying too great strain upon a nurse in expecting her to assimilate much that she cannot appreciate because she has not the essential ground-work of knowledge. When we have said this, and pointed out that a full page illustration such as 'counting the pulse' is unnecessary, while some of the

others are not sufficiently definite to teach the processes to any one not familiar with them, we have said most that we have to say in criticism; unless it be to add that there is not enough insistance on the very important facts that every nurse must know to be efficient.

For the physician who has not had a hospital training there is much that is useful and here, we think, Prof. Register's book is more likely to reach its true purpose than in the hands of the nurse, for much of the information, if acted upon, should be acted upon by the physician and not by the nurse.

MEDICAL JURISPRUDENCDE, FORENSIC MEDICINE AND TOXOLOGY. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B. Second Edition, Volume II. New York: William Wood & Company, 1907.

The second volume of Witthaus's great work on medical jurisprudence is a splendid book of over 1,000 pages, done in the fine style for which William Wood & Company are famous. The collaborators are a body of men from the medical and legal professions, which it would be hard to excel in any country. The work is likely to remain long as a standard in law courts upon which the lives of men will depend. The article on Abortion, by J. Chalmers Cameron, is done with scholarship and professional knowledge. The work is one of the most important which has been published in the United States; but we cannot refrain from saying that the work is marred by the undue consideration of sexual perversions.

A TEXT-BOOK OF PHYSIOLOGY FOR MEDICAL STUDENTS AND PHYSICIANS. By WILLIAM H. HOWELL, Ph.D., M.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition. W. B. Saunders & Co.; Canadian Agents: J. A. Carveth & Co., Toronto.

We had the pleasure of reviewing the first edition of this book nearly two years ago, and made the statement that it was the best text-book of physiology yet written in the United States. We see no reason to change our opinion after examining the second edition. The author has the happy faculty of giving a large amount of detailed information and referring to a great many recent publications without sacrificing a certain literary charm.

We do not know of any book from which a general knowledge of recent advances in physiology may be obtained with less mental effort. In a little over 900 pages it gives about as much information as can be imparted in a single volume.

Physiology seems to be coming into her own just now. Clinicians are recognizing its value as a foundation for rational practice, more, perhaps, than ever before. Professor Howell presents his subject with a full recognition of these facts and the light that modern physiology throws on such disorders as those of the circulation, the nervous system and metabolism shines out from the pages of this book with no ordinary brilliancy.

W. S. M.

MANUAL OF ANATOMY—Systematic and Practical including Embryology. By A. M. Buchanan, M.A., M.D., Professor of Anatomy, Anderson College, Glasgow. Vol. II. London, Balliere, Tindall & Cox, 1907.

The first volume of this work was reviewed in November last. This volume comprises the abdomen, thorax, head and neck, nervous system and organs of special sense. It is a very creditable work and recommends itself by its size and it requires no special muscular effort to handle as do some of the treatises, and yet no essentials are omitted—at the end of each section is a guide to the dissection of that part. The illustrations as in the previous volume are diagrammatic but very simple and plain, many of them are familiar friends. Development and embryology are treated at the end of each section in a short concise manner and not too elaborate to be confusing to the beginner. The volume finishes with an appendix in anatomical nomenclature which is of doubtful value, but there is a most useful glossary, which, if it gave the derivation of the words as in Quain's anatomy would be much improved. We can recommend this as a useful and convenient treatise in anatomy.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. GLEASON, M.D., LL.D., Clinical Professor of Otology in the Medico-Chirurgical College, Aurist in the Medico-Chirurgical Hospital, etc. Illustrated. W. B. Saunders Company, Philadelphia and London.

This book, as its title implies, is a Manual of Rhinology, Laryngology and Otology.

The chapter devoted to the Diseases of the Septum is very complete, as might be expected from the author, whose operation for the correction of septal deviations is well known.

The submucous operation of the septum is described but we do not think its advantages over the crushing operations have been sufficiently emphasized.

Bronchoscopy and Oesophagoscopy have not even been referred to, which we consider a notable omission in a text-book of such recent date.

That portion of the work devoted to the diseases of the ear has been carefully described and considered.

Many special formulæ have been appended. The book has been abundantly illustrated, the type is excellent, and on the whole we can heartily recommend it to the student and general practitioner.

R. H. C.

A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. By Charles E. Simon, M.D., Professor of Clinical Pathology in the Baltimore Medical College. Sixth edition, revised. Octavo, 682 pages, with 177 engravings and 24 coloured plates. Cloth, $4.00, net. Lea Brothers & Co., Philadelphia and New York, 1907.

The present edition of Prof. Simon's work is the sixth, and there are numerous changes since the last one which appeared. Among the new subjects treated we find opsonins, which is satisfactorily handled; there are also appended two chapters, one on the preparation of culture media, and one which we do not remember to have seen taken up in any other book of this kind, a digest of a course in clinical methods used in the laboratory. Whether the order of subjects there given be adhered to or not, the chapter will form a useful control for laboratory teachers, upon their own courses, and the class "exercises" there laid down will often be found suggestive. Much remodelling of the text has been done, to make room for the additions, and new plates have been added, so that the volume still remains of the same size, and is, in this respect, admirably suited to its purposes. The sixth edition will maintain the popularity that Prof. Simon's book has enjoyed in past years.

Lea's Series of Pocket Text-Books. Materia Medica, Therapeutics, Pharmacology and Pharmacognosy including Medical Pharmacy, Prescription Writing and Medical Latin, A Manual for Students and Practitioners by William Schlief, Ph.G., M.D. Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Series edited by Bern B. Gallaudet, M.D. Third edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York.

This is the third edition, revised and enlarged, and on examining it, one does not expect that any further enlargement can be necessary in the future, for it seems to be complete. The useful drugs appear to be all here, and the useless ones are not; incompatibilities are briefly given,

medical Latin is reduced to its simplest, the poisons and their antidotes, a classification of drugs and a number of prescriptions are given. The text is brief and to the point, and by the judicious use of italics and short sentences, it is the reader's fault if he do not carry away some knowledge even of the physiological and pharmacological effects of the various drugs. Dosage is given in both systems of measurement, and the volume ends with an index which even suggests the drugs to be used for particular diseases or symptoms. One whose weak point is therapy will get a great deal of support from this text-book; and even others will obtain usefully-tabulated, if not new material from its pages.

500 Surgical Suggestions. By Walter M. Brickner, B.S., M.D., and Eli Moschcowitz, A.B., M.D. Second Series. New York, U.S.A.: Surgery Publishing Company, 92 William Street, 1907. Price, $1.00.

Most persons are aware that New York is in the U.S.A., as is affirmed in the above transcript from the title page of this book; and many of the "snappy, practical suggestions," and "terse, useful, therapeutic hints, and diagnostic wrinkles" contained in this "pocket manual *de luxe*!—printed in attractive Cheltenham type, on antique India tint paper, with marginal headings and subheads in contrasting ink, and with an artistic binding of heavy cloth, gold-lettered," are equally obvious with that geographical statement. Many of these aphorisms we have already seen in those medical journals with which "manufacturing chemists" furnish us free of charge. We are not denying the truth of them. We admit that section of the annular ligament weakens the hand, that a wedge of hard wood makes a gag, that flat-foot is a cause of pain in the leg; but we do not find "refreshment" in studying such gems of thought.

International Clinics. Edited by W. T. Longcope, M.D., Philadelphia. Volume III, Seventeenth Series, 1907. Philadelphia and London: J. B. Lippincott Company, 1907.

This volume of a series which is called "International," contains 25 clinics, of which 15 are from the United States and 10 from the adjacent parts of the world. There are five from Philadelphia, two from New York, two from Washington, and one from each of the following places: Silver City, Chattanoga, Cincinnati, Louisville, Baltimore and Hathorne, Mass. There are none from Germany, nor, indeed, any from the Continent of Europe, except from France, though in that large area there must be valuable work going on. Very few of these articles are in reality clinics. One could not imagine a man at a bedside talking,

as Dr. Bullock does, about "the flounderings of the human intellect," and the "unceasing struggle with God's infinities." It would not be fair to the man in the bed and students would laugh.

A Manual of Hygiene and Sanitation. By Seneca Egbert, M.D., Professor of Hygiene in the Medico-Chirurgical College, Philadelphia. New (fourth) edition, thoroughly revised. 12mo, 498 pages, with 934 illustrations. Cloth, $2.25, net. Lea Brothers & Co., Philadelphia and New York, 1907.

The material in this book is well presented, no small task, when one considers that the author has chosen to include in a manual everything connected with hygiene, from oil-stoves to ovulation. But, as he says somewhat sustentiously, "knowledge of the right kind can do not harm." That, we think, is well within the truth, and we are willing to admit the applicability of the aphorism to all which this book contains. A student who reads it will know something of everything, and that is as much as a student can expect. Therefore, the book is well designed.

The Standard Family Physician. By Professor Carl Reissig, M.D., of Hamburg, Germany, and Smith Ely Jelliffe, A.M., M.D., Ph.D., Volumes I and II. Funk & Wagnalls Company, New York and London, 1907; Canadian Agents: The Cambridge Corporation Limited, 472 St. Catherine Street, Montreal.

There is no better book than this for those of the laity who think they are benefited by the possession of a work on medicine. In so far as we have examined it the information which it contains is correct, and it is pervaded by a scientific spirit.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume III, September, 1907. Lea Brothers & Co., Philadelphia and New York, 1907.

The contents of Volume III are Diseases of the Thorax and its Viscera, including the Heart, Lungs and Blood-vessels, by William Ewart, M.D., F.R.C.P.; Dermatology and Syphilis, by William S. Gottheil, M.D.; Obstetrics, by Edward P. Davis, M.D.; Diseases of the Nervous System, by William E. Spiller, M.D.

Medical News.

MILITARY SURGEONS.

A meeting of military surgeons was held in Montreal during the convention of the Canadian Medical Association.

The following officers were elected: Hon. President—The Hon. Sir Frederick Borden, K.C.M.G., Minister of Militia. Hon. 1st Vice-

President—Col. E. Fiset, D.S.O., Deputy Minister of Militia. Hon. 2nd Vice-President—Lieut.-Col. G. C. Jones, Director-General of Medical Services. President—Lieut.-Col. G. Sterling Ryerson, M.R.O., Toronto. Vice-Presidents for the different districts as follows:—Capt. D. H Hogg, A.M.C., M.D., No. 1; Lieut.-Col. Hillary, 12th Regt., M.D., No. 2; Lieut.-Col. Duff, P.A.M.C., M.D., No. 3; Major J. D. Courtenay, M.R.O., M.D., No. 4; Major MacTaggart, 1st Prince of Wales Fusileers, M.D., No. 5; Lieut.-Col. Worthington, A.M.C, P.M.O., M.D., No. 6; Lieut.-Col. Grondin, 87th Regt., M.D., No. 7; Lieut.-Col. MacLaren, A.M.C., M.D., No. 8; Lieut.-Col. Sponagle, A.M.C., M.D., No 9; Major Devine, P.A.M.C., M.D., No. 10; Lieut.-Col. J. A. Grant, P.A.M.C., M.D., No. 11; Lieut.-Col. Johnston, A.M.C., M.D., No. 12; Capt. S. Hewetson, A.M.C., M.D., No. 13. Secretary-treasurer—Lieut. T. H. Leggett, A.M.C., Ottawa.

The Executive Committee appointed consists of thirteen, one officer from each of the respective thirteen military districts. They are:

Capt. H. A. Kingsmill, 7th Regt., Fusileers; Major R. Rennie, 2nd Regt., Queen's Own Rifles; Major Kilburn, P.A.M.C.; Major A. T. Shillington, A.M.C.; Lt.-Col. K. Cameron, A.M.C.; Capt. M. Lauterman, Duke of Connaught Hussars; Capt. E. A. Lebel, 9th Regt.; Major G. J. McNally, 71st York Regt.; Capt. G. M. Campbell, 7th Nova Scotia's Regt.; Lieut. J. W. Manchester, 90th Regt., Winnipeg Riflis; Capt. 'F. C. McTavish, 6th Regt., Duke of Connaught's Own Rifles; Lt.-Col. J. Warburton, 82nd Regt.; Lieut. T. A. Hislop, Headquarters, D.G.

The next general meeting will be held at Ottawa in 1908, at the time of the Canadian Medical Association meeting.

MEDICAL INSPECTION OF SCHOOLS.

The following physicians have been appointed medical inspectors in the elementary schools of the city:—Doctors Archambault, 3597 Notre Dame Street; E. G. Asselin, 481 St. Antoine Street; —. Belanger, 198 Mount Royal Avenue; A. Bourdon, Bourgouin, 479 St. Denis Street; B. Bonnier, 1875 St. Catherine Street; J. G. Brown, 1171 St. Denis Street; S. G. Brown, 485 St. Catherine Street; E. G. Cartier, 30 Chaboillez Street; Dr. Conroy, 304 Centre Street; J. A. Cousineau, 3767 Notre Dame Street; H. Desmarais, Donnelly, 543 St. Antoine Street; Fafard, 616 Parc Lafontaine; J. E. Gagné, 487 Ontario Street; R. Gagné, 1422 St. Denis Street; Gellathy, 349 Charlevoix Street; Grenier, 1859 Ontario Street; Haldimand, 734 St. Catherine Street;

Hamelin, 429 Mount Royal Avenue; Handfield, 24 Mount Royal Avenue; M. Hansford, "The Bellevue Flats"; Jasmin, 987 Notre Dame Street; Lacombe, 687 Parc Lafontaine; Z. O. Lapointe, 791 Notre Dame Street; Laurie, 980 St. Catherine Street; J. A. Leduc, St. Paul Street; Z. Lefebvre, 983 Notre Dame Street; Lemieux, 31 St. Louis Square; Malouf, 124 Lagauchetiere Street East; Mason, 30 Shuter Street; W. Monette, 263 Richmond Street; Mullaly, 81 Union Avenue; A. T. Mussen, 45 Crescent Street; H. McDonald, 200 Milton Street; McEvoy, 447 Wellington Street; McGovern, 157 Island Street; Opsoomer, 14 Darling Street; Phillmore, 7 Buckingham Street; Prendergast, 9 St. Louis Square; Ranger, 1232 Ontario Street; Richer, 562 Parc Lafontaine; J. A. Rousseau, 1066 St. Denis Street; H. Schlan, 43 McCord Street; Verner, 997 St. Denis Street; Villecourt, 914 St. Denis Street, and T. R. Wilson, 44 Park Avenue.

COLLEGE OF PHYSICIANS AND SURGEONS.

The election of Governors for the College of Physicians and Surgeons of the Province of Quebec resulted as follows:

Governors re-elected 1907-10—R. Boulet, Montreal; M. D. Brochu, Quebec; F. X. P. Dolbec, St. Casimir; Hon. J. Girouard, Longueuil; J. L. M. Genest, St. Bernard; A. Jobin, Quebec; J. E. Ladrière, Lotbinière; J. A. Laurendeau, St. Gabriel de Brandon; J. A. Lessard, Granby; J. A. Macdonald, Montreal; A. R. Marsolais, Montreal; L. M. Moreau, L'Islet; L. P. Normand, Three Rivers; C. O. Ostigny, Valleyfield; L. A. Plante, Louiseville; J. A. Rouleau, Montreal; A. Simard, Quebec; L. J. O. Sirois, St. Ferdinand d'Halifax; A. Thibault, Wotton.

New Governors—E. G. Asselin, Montreal; L. A. Beaudry, St. Hyacinthe; H. W. Blagdon, St. Phillippe de Néri; S. Boucher, Montreal; C. E. Côté, Quebec; J. E. D'Amours, Papineauville; F. X. De Martigny, Montreal; C. J. Edgar, North Hatley; J. F. Gauvreau, Rimouski; E. Laberge, Quebec; W. Lamy, Sherbrooke; C. R. Paquin, Quebec; F. Plourde, St. Jerome; H. Prevost, St. Jerome; A. L. Smith, Montreal; I. Sylvestre, Sorel.

The following officers were elected:—President, M. Normand, Three Rivers; Vice-presidents—H. A. Lafleur, Montreal; A. Simard, Quebec. Secretaries—C. R. Paquin, Quebec; J. A. Macdonald, Montreal. Registrar—S. Boucher, Montreal.

CANADIAN SOCIETY OF NURSES.

At the meeting of the Canadian Society of Superintendents of Nurses' Training Schools held in Montreal, September 11th and 12th, the following officers were elected for the coming year: President, Miss Sniveley, of Toronto; 1st Vice-President, Miss Chesley, of Ottawa; 2nd Vice-President, Miss Livingston, of Montreal; Secretary, Miss Brent, of Toronto; Treasurer, Miss Meiklejohn, of Ottawa. The following were elected Councillors: Miss Henderson, Toronto; Miss McDougald, Halifax; Miss Wilson, Winnipeg; Miss Chesley, Ottawa; Miss Patton, Toronto; Miss Greene, Belleville, and Miss Scott, Kingston.

News comes from England of the death of Surgeon Major-General Sir John Reade. Sir John Reade was a native of Perth, Ont., where he was born July 7, 1832. He was a son of the late Geo. Hume Reade, staff surgeon, and formerly colonel commanding the 3rd Regiment of Canadian Militia. He was married in 1861 to Harriette Fanny, daughter of Major J. D. Bean, of the Indian army. He was educated at a private school and Edinburgh University. In 1854 he entered the army medical department and became surgeon-general in 1888. He retired in 1892.

Dr. J. Ward Merrill died in the Water Street Hospital, Ottawa, of cerebro-spinal meningitis, September 4th. He contracted the disease in Chapleau, where he was resident physician for the Canadian Pacific Railway. He was thirty-one years of age, and was a graduate of Queen's University, Kingston, in Arts and Medicine. He was for a time in the service of the Water Street Hospital as House Surgeon.

Dr. Earle Stewart died in the Winnipeg General Hospital from typhoid fever on September 6th. Dr. Stewart was born in Manitoba and was twenty-four years of age. He was a graduate of the Manitoba Medical College, and only entered the hospital service last June.

Dr. Kenneth MacKenzie, House-Surgeon at St. Luke's Hospital, Ottawa, died on September 7th, from an attack of pneumonia. He was a native of St. Thomas, and was in the twenty-fourth year of his age.

Dr. George S. McGhie, a leading practitioner of the County of Leeds for more than twenty years, died at Elgin, of acute Bright's disease. He was a graduate of Queen's University.

A meeting of twenty-five physicians of the Western District of Middlesex was held at Strathroy on September 23rd. The following officers were appointed:—President, Dr. L. Hyttenrauch, Appin; Vice-president, Dr. O. L. Berdan, Strathroy; Secretary-treasurer, Dr. W. H. Woods, Mount Brydges.

Dr. John W. Considine, of St. Catharines, has just celebrated his ninetieth birthday and is yet engaged in practice. He was born in Ireland and graduated from Trinity University, Dublin. He has lived in St. Catharines for thirty-five years and still occupies the position of County Coroner.

Dr. D. G. Revell has been appointed Provincial Bacteriologist in the Department of Agriculture at Edmonton. Dr. Revell has been connected with the University of Chicago for five years. He is a native of Elgin County, and a graduate in medicine of the University of Toronto.

An epidemic of diphtheria is reported from Quyon, near Ottawa. The schools and churches are closed, and in one house the whole family of twelve contracted the disease. The disease was prevalent in the village for six weeks before assuming a virulent form.

Dr. James C. Fyshe, who for two years has been medical superintendent of the Alexandra Contagious Diseases Hospital, has left for Bankok, having accepted the position of assistant director of the department of hygiene of Siam.

Dr. Harvey Clare, who has been assistant physician at the Toronto Asylum for about a year, has been appointed assistant medical superintendent of the asylum at New Westminster.

Dr. G. C. Richardson, of Hazeldean, has been appointed Sheriff of Carleton county, in succession to the late Sheriff Sweetland.

Dr. Claude E. Kilborn, of Winnipeg, died on September 7th. He was in his thirty-first year, and was a graduate of Manitoba College.

At the last meeting of the American Laryngological Association, Dr. H. S. Birkett, of Montreal, was elected President.

Retrospect of Current Literature.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

E. L. Trudeau. "Tuberculin Immunization in the Treatment of Pulmonary Tuberculosis." *Am. Jn. Med. Sc.*, June, 1907.

Immunity in tuberculosis has long been looked upon as impossible of attainment, because there is little clinical evidence that one attack protects against another. Experimental work has, however, done much to demonstrate the possibility of producing a certain degree of immunity. This immunity is only relative and the best results have been obtained by vaccination with living bacilli.

Calmette, from the introduction of living bacilli in calves and young goats, was able to produce immunity to subsequent inoculations in doses proving fatal to controls, while a larger amount, or repeated inoculations of the same small dose ended in general infection and death.

The work of Wright and Douglas on the opsonins shows that the size of the dose governs the result, which may be a prolonged negative phase with its decrease of the natural resisting power, or a positive phase resulting in a relative degree of immunization. If we use tuberculin by the clinical method small doses result in a well marked degree of toxin immunity, as shown by increased toleration to large doses of toxin, whilst larger doses, or too rapid an increase may induce an aggravation of all the symptoms of the disease.

Trudeau has used chiefly the B. E. tuberculin. Habituation takes place slowly and violent reaction sometimes takes place even when the dose is increased with the utmost care. Possibly a preliminary course of B. F. tuberculin might obviate this difficulty.

The clinical method of using tuberculin adopted by Trudeau aims at carrying the patient to large doses, one hundred to ten thousand times the initial dose, while avoiding marked reactions or any disturbance of the patient's general health. The main difference between this and Wright's method is progression in dosage and to a certain extent the interval between the doses, which is much longer in Wright's method.

The question is which is the more reliable method as to dosage—the opsonic index or the clinical observation of the patient's condition and symptoms? And is the production of tuberculin immunity essential or not?

The improvement in the patient's general condition and symptoms while being injected with increasing doses of toxin, would point to the conclusion that whatever the effect may be on the opsonic index, it has a favourable influence on the patient's disease.

When used according to established rules there is little risk in tuberculin, and the main object by the clinical method is to produce as strong an immunity to tuberculin as possible, without bringing about any general fever reactions, violent local reactions or disturbing the general health.

The dosage at the outset of treatment should be extremely small and to put off reactions as long as possible. If a marked reaction occurs at the onset it is very difficult to habituate the patient to increase in the dosage. It has been amply demonstrated that tuberculin hypersusceptibility may be produced on cases in which the diagnostic test has been made with tuberculin, and it may be exceedingly difficult to produce tolerance when the treatment is begun. To commence with doses of 1-10000 milligram of filtrate B. F. or Koch's B. E. in afebrile cases, or 1-1000 mg. old tuberculin should be given.

Denys makes use of eight solutions in giving B. F. No. 1 contains 1-10000 mg. to each c.c. No. 2 contains 1-1000 mg. to each c.c. No. 3, 1-100. No. 4, 1-10, and so on running up to No. 8, which is pure filtrate. The increase in using these solutions is always by 1 decigram each solution. As 10 decigrams, or 1 c.c. of each solution is reached, the real solution which is ten times stronger, and in which 1 decigram represents the same dose as 1 c.c. of the preceding solution, is taken up and the increase is again by 0.1 of the new solution until 1 c.c. is given. Thus, for ten doses the increase is by 1-10000 mg., then by 1-1000 mg., etc. Reactions are most apt to occur at the second or third injection of the new solution, as the increase is ten times larger when a new solution is used.

The intervals between the injections are three or four days, and longer with the larger doses. If no intolerance is manifested it should continue for six months, but when reactions appear it may take a year to reach full doses.

The symptoms of intolerance may be divided into three groups, those of a general febrile reaction, those indicating a local reaction both at the site of disease and of injection, and those pointing to general constitutional disturbance, as malaise, headache, sleeplessness, pains, anæmia, nausea and loss of weight and strength. Any of these groups of symptoms indicate intolerance, and are to be considered before giving another dose and in regulating its strength. The febrile reaction may be short or prolonged, the former resembling the tuberculin reaction, and the latter lasting at a very moderate grade for a week or less.

Local reaction at the seat of disease is a valuable guide to dosage. Increased cough and expectoration, pleuritic pains, aggravation of the

physical signs, hoarseness, pain and aphonia if the larynx is involved all point to local reaction and are indications for caution in increasing the dose. If moderate, these symptoms soon subside, and are of benefit in bringing about reparative processes. In support of this is the improvement in the general condition and the lessening of cough and expectoration following moderate local reactions.

Slight local reaction may be disregarded, but if severe it is of significance and demands caution in increasing the dose.

More important and most often disregarded because no rise in temperature may be present is the group of symptoms denoting constitutional disturbance. If the injections are continued and the dose increased the disease may take on an acute form.

The more chronic types of cases are the most favourable for tuberculin treatment. Acute cases, or cases with an acute onset, should be treated by the open air treatment only, and the remedy should only be used when a partial arrest in the activity of the process takes place.

Trudeau's belief in the value of tuberculin rests on a long clinical experience, and is supported by the fact that 18 to 25 per cent. more of treated than of untreated cases discharged from the Sanitarium during the past fifteen years were living at the time of making the enquiry.

Dr. James J. Putnam. "Recent Experiences in the Study and Treatment of Hysteria at the Massachusetts General Hospital; with Remarks on Freud's Method of Treatment by 'Psycho-Analysis.'" *Jn. Abnormal Psychology,* Vol. I, No. 1.

Harry Lilienthal and E. W. Taylor. "The Analytic Method in Psycho-therapeutics. Illustrative Cases." *Publications of the Massachusetts General Hospital,* Vol. 1, No. 3.

These papers are based on Freud's view of the origin and treatment of hysteria. Briefly stated, Freud believes that hysteria has its origin in some suppressed emotion, usually a painful experience and commonly of a sexual character. The emotion is suppressed, but is accompanied by some bodily or verbal expression, which continues as an element of the patient's consciousness.

The recurrence of the expressive sign may involve also the recurrence of the emotion, but eventually the sign persists alone, until such time as the repressed emotional state is given some opportunity to work itself out in some adequate and natural expression, after which the recurrence of the sign comes to an end.

Freud lays much stress on the element of sexual repression, and regards the sexual factor as prominent in the etiology of all the psycho-

neuroses. In many of the hysterical cases there are predisposing circumstances ("hypnoid states"), without which, perhaps, the sexual or painful experience would not exert the binding force which they establish.

Freud believes that the mischief kept up by these repressed emotions are annulled if they are given an opportunity to work themselves off by articulating in the presence of the conscious attention. In order to secure the "cathartic" result, Freud does not regard it as necessary to resort to hypnotic methods or suggestion. He endeavours to induce in his patients a condition of relaxation and passivity, with abstraction from the engrossment of sense stimulations, and then with the hand pressed to the forehead to urge and lead them to search their memories, in order to bring to life anything and everything, no matter how disagreeable, how offensively sexual, which may be related to the condition which is at stake, or may even come into the mind, without at first seeming to have any relationship to this condition. The accomplishment of this task is said to be usually easier than it would seem. In fact, the repressed emotion, although it may be the thing which the patient seems to find the greatest difficulty in bringing vividly before his mind, is really the thing which, in fact, principally occupies his mind. The physician's appeal may for a long time be resisted, but when the "confidences" eventually come they have a sharpness of outline indicating how clearly they have been preserved.

Putnam regards the "psycho-analytic" method as one to be attained but by few physicians, but he is inclined to think that a confidential conversation may accomplish just as much good.

In both papers instances are recorded illustrating the methods applied and the beneficial results obtained.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

The indications for, technique and result of operations for widening the pelvis. (XII. German Gynaecological Congress, Zentralbl. f. Gynäk., No. 24, 1907).

Zweifel (Breslau) defended symphyseotomy. At first he had to encounter opposition. The advice to let labour take its normal course after the operation had nothing terrible in it. It prevented vaginal lacerations. The women do not suffer greater pain than in normal labour. Gigli's opposition to symphyseotomy, that cartilage did not heal well, had been disproved by numerous experiments. The second

Translated by W. GORDON GRANT, M.B., in the Transvaal Medical Journal.

cause of opposition was that the symphysis was a joint, yet he found that it healed as well as bone. The third cause, the difficulty of asepsis, could be got over. Good pains and a short labour were a necessity. Bad pains were often a sign of putrefaction of the amniotic fluid. The fourth was that only in 9 out of 100 cases was there any permanent increase in the size of the pelvis (Baisch). There were, however, 17 natural and induced labours, so that he ought to have reckoned 9 in 834, and in 8 of these he states that there was a "schlotter" joint. This, Zweifel says, is incorrect. He showed three of the patients, and their walk was quite right. Baisch had later withdrawn his statement. It was possible to demonstrate a measureable increase in the size of the symphyseal cartilage when, after operation, the patients were made to lie with the legs apart.

Doederlein was pleased to see that Zweifel and he agreed in all the important points. Various operators had shown that it was not at all easy to differentiate in subcutaneous operations between bone and cartilage, and symphyseotomy had been done in place of hebosteotomy. There was little to choose between the operations, but he believed that it was preferable to cut somewhat to the side. Zweifel and Pinard believe that section of the symphysis is preferable, as it leaves a permanent increase in the size of the pelvis. That may be possible when, a year or two later, a space is present; in the other operation, this does not occur. Natural labour after hebosteotomy is due to other favourable factors, not to increase in the size of the pelvis.

Von Franque had operated in 19 cases, and lost one mother from atonia uteri. Four children died owing to the operation having been performed too late, but he believes that it should be done in suitable cases, when the child is beginning to show signs of asphyxia, and not too long postponed; also when the patient is not too severely infected. Of 9 infected cases, all recovered, and 5 had no fever in the puerperium. He showed Sitzenfrey's needle, with which he held that it was impossible to injure the bladder. In two instances where it occurred, it took place during the separation of the bones. The operation is indicated when, two hours after rupture of the membranes, the head has not entered the pelvic brim; and then he allows labour to end naturally; but this could not always be followed, as there were indications that required intervention. Two infected cases with communicating vaginal lacerations recovered after a severe puerperium. The operation is not for every case in private practice. Nine of the patients were under observation for one year, and only in one (with a communicating vaginal laceration) was there any trouble in walking. Hernia was present in

no case. In two there was slight descent of the anterior vaginal wall. In one case the bones had not united two years after the operation. The children did well.

Seeligman reported the results of hebosteotomy as done by his method, which consists in making a small incision parallel to the upper edge of the pubic bone, then with his finger separating the periosteum from the back of the bone until he reached the lower edge of the pubis; then drawing the vulva inwards, he incised the skin at the outer fold of the labium majus, and with the finger separated the corpus cavernosum clitoridis along with the periosteum from the bone, until the posterior surface of the ascending ramus was reached. By so doing he can pass the saw very easily and without any danger of wounding adjacent organs. The needle used to pass the sound round is left lying to protect the parts during division of the bone. He drains through the lower wound. Results of operations in private and in kliniks show quite different figures. The induction of labour, perforation, and cæsarean section all show a considerable degree of maternal mortality, and he believes that hebosteotomy will diminish this.

Henkel believes that hebosteotomy in suitable cases and carried out with proper care, allows a very good prognosis to be given both for the mother and for the child. Primiparæ are not suitable on account of the resistance of the soft parts and the danger of lacerations, which cannot be prevented even if labour is allowed to proceed naturally. One usually does not expect in such cases the labour to terminate naturally. Prophylactic section of the pelvic may seem advisable in some primiparæ, where the soft parts are easily dilatable. The severe hæmorrhage and lacerations which sometimes follow render it advisable to wait till the os is fully dilated, as it may be necessary to terminate labour rapidly. The patient must never be left after the operation has been performed till the labour is over, and then the vagina should be examined for lacerations. It may be advisable to use the dilating bag to dilate the vagina, or to do an episiotomy. Certain forms of contraction, including pelves of the male type, and with a high symphysis, are not suitable for this operation. Lacerations, hæmorrhage, and bladder lesions affect the prognosis. Direct separation of the periosteum protects from hæmorrhage and bladder lesions. He had never seen infection of the wound or necrosis of the bone follow. He prefers the half-open to the properly so-called subcutaneous method. The section of the bone should be done as near the symphysis as possible, as that gives the greatest amount of room. He operates through a single small incision at the upper border of the symphysis.

Certain researches which he had made on the symphyses of women who had died soon after labour had shown that the symphysis was a proper joint, with a fibrous capsule and a true synovial membrane.

Stoeckel reported 44 cases from the Charite (Berlin), with no maternal deaths. Two of the children died. Hebosteotomy is an operation without danger to the mother. By the proper subcutaneous method there is least bleeding, and the bladder can easily be avoided. As the bladder lies usually extra-median, its position should be correctly ascertained, and the operation performed on the opposite side. If the needle is passed from below upwards, the bladder can be easily avoided. In his 44 cases, on only one occasion was the bladder punctured. Bladder puncture will heal spontaneously, while bladder rupture is dangerous, and is due to excessive separation of the bone. The legs should not be allowed to separate too widely, and labour should be allowed to proceed naturally. Prophylactic hebosteotomy purely on the result of the pelvic measurements is not justified, and neither should one wait too long. In the case of obvious disproportion between the fœtal head and the pelvis, hebosteotomy should be done as soon as the os is fully dilated and the child still unharmed. Operative delivery is indicated when there is any danger to the child. Forceps is preferable to version.

Fleischer found as the result of hebosteotomy of seven puerperal pelves that (1) the true conjugate showed a distinct increase, greatest in small, round pelves (10 mm.), (2) the transverse diameter was still more increased (up to 2.3 mm.), on the average 14.3, 15.0, 15.6; (3) the alteration in the oblique diameter was very slight, and should not affect the choice of the side for operation: (4) the circumference was important, as the average increase was 5.5 c.; (5) the integrity of the sacroiliac synchrondrosis was not affected by a separation of the bone of 4 cm.

Schickele says that in order to bring about a permanent increase in the size of the pelvis, the section of the bone should be made in the form of a step, and after delivery the ends of the bone so manipulated that the two projecting parts remained opposite each other. This might be arrived at by keeping the patient lying, with the legs abducted.

Van de Velde directed attention to the permanent increase in the pelvic dimensions which can be attained after hebosteotomy when the patient is made to lie with the legs well apart and without a bandage. Such increase takes place with complete recovery of the bony continuity. He showed skiagraphs, from which one could see that there was an increase of from 1.5 to 2.0 cm. That this is sufficent was proved by three of his cases, in which the next children were born naturally, even

although they weighed 100, 300 and 160 grammes more than those for which hebosteotomy was done. This is preferable to the increase sometimes met with after symphyseotomy, where union is fibrous, whereas here it is bony. There are none of the disadvantages of symphyseotomy. The pelvis is certainly assymetrically enlarged, but this is no disadvantage, as it allows during the passage of the head the parietal tuberosities to find room. He reported two cases with favourable results where the operation had been done for contracted outlet; the one was a coxalgic, and the other a funnel-shaped pelvis. When the soft parts at the outlet are with difficulty distensible, or not at all, he does as a routine operation episiotomy, and considers it necessary in all cases where hebosteotomy is done for contraction of the outlet. The operation is of great use in contracted outlet, as the increase is more direct, and it will replace perforation in many cases. There is demonstrable after the operation an increase of from 1.5 to 1.30 cm. in the distantia tuberum.

Fueth made a number of experiments on rabbits in which he transplanted a piece of rib cartilage into the symphysis pubis, and six weeks later killed the animal, and found that it had healed in with the formation of a fibrous capsule round it, and increased the width of the symphysis from 2 mm. to 1.05 cm. Becoming cognizant of the work of Payr with magnesium, he tried the effect of the metal in the form of wire, and found that by using it instead of cartilage, he could get an increase in the use of the symphysis and the formation of fibrous tissue as easily as with transplanted cartilage.

Sellheim advises that one should practise the operations of symphyseotomy and hebosteotomy on sheep that have, previous to being killed, been rendered insensible by a blow on the head as the conditions are very similar to, what is found in man.

Kroemer believes that operators must take steps for a better convalescence, and cause the formation of a distensible cicatrix—a pseudarthrosis. The latter he has arrived at in dogs by interposing a piece of muscle and fascia between the ends of the bones. The prognosis of the operation depends upon the extent and healing of the lacerations. He is opposed to forceps delivery, as it causes lacerations, while version and extraction do not do so. After the operation, the bladder should be filled, and if there are any lesions then the part should be laid bare, and after primary suture, a catheter tied in. Of 131 cases operated upon at Giessen, all the mothers made a good recovery, and all the children were born alive.

Buerger states that in Schauta's Klinik 76.5 per cent. of women with narrow pelves were delivered naturally. The "surgical" cases amount-

ed to 34.4 per cent. He is in favour of hebosteotomy taking its place in obstetrics, as he believes it is a safe procedure for both mother and child. The operation does not interfere in any way with walking or working, and in many there is a permanent increase in the size of the pelvis.

Scheib reported a case that had died from atonia uteri twenty-seven hours after hebosteotomy. The woman was a primipara, aged 39, with a slightly assymetrical flat rachitic pelvis (conjuguta vera 6.9 cm.). He made casts, and gives the following as his conclusions: (1) That it is important that the expulsive forces act in the same way as in the complete pelvis; (2) That the increase in the obstetric conjugate is greater than in the transverse diameter when the expulsive force acts vertically; (3) That the increase in the transverse diameter of the pelvic inlet is due to the pelvic bones opening like the halves of a door, the axes being at the sacro-iliac synthondroses; (4) That when the bones were apart, there was no increase in the length of the oblique diameters.

Menge's treatment for the commoner forms of contracted pelvis is as follows: (1) When the conjugate is between 5.5 and 6.5 cm., and the child of medium size and alive, cæsarean section; (2) With a conjugate between 6.5 and 7.5 cm., at times labour can finish naturally. This is possible in head presentations. In breech and transverse presentations, prolapse of the cord or small parts, and when in the interest of the mother or child delivery must take place without delay, cæsarean section; (3) With a conjugate between 6.5 and 7.5 cm. hebosteotomy may be done before it is possible to know the proportional relation between the fœtal head and the pelvis, *i.e.*, before rupture of the membranes, as natural delivery can scarcely be expected. It is, however, advisable to wait till the os is fully dilated. When the membranes have ruptured, the operation should be done as soon as possible; (4) With a conjugate over 7.5 cm., spontaneous delivery of a full-term child may occur. When, however, some considerable time after the membranes have ruptured, it is clear that the disproportion between the fœtal head and the pelvis will not allow of a normal delivery, and the child is still alive, hebosteotomy should be done; (5) With a conjugate between 7.5 and 8.5 cm., hebosteotomy is preferable to version and extraction when the presentation is transverse and cephalic version impossible, when there is prolapse of the cord or small parts, or when the presentation is a breech; (6) Immediate delivery after hebosteotomy is only proper when the mother or child are in danger.

Reifferscheid reported 27 hebosteotomies. One died five days after operation from emboli. Bladder lesions occurred in three instances.

In all the operation was done by the proper subcutaneous method, in which he does not think it is possible to avoid the bladder with certainty. Labour should be allowed to terminate naturally. It is suitable in cases with a conjugate over 6.5 cm., and permits us to wait and see if labour will not terminate naturally. In private practice its place will always be taken by induction of premature labour. A second pregnancy after the operation ended in one case in version and extraction of a living child, and in another labour terminated naturally. The children were, however, smaller. Union was found not to be bony, but fibrous. It should be attempted to get some of the muscle or fibrous tissue between the ends of the bone, so that union will be fibrous, and a more or less movable joint formed.

Thiess states that natural labours are very common after symphyseotomy. There is permanent enlargement of the pelvis, as can be seen from measurements and skiagraphs. The symphysis also then has the power of stretching, and this does not interfere with walking. Labours before the operation show 16 per cent. of living children, after the operation, 79 per cent.

Pelham reports from Chrobak's Klinik that out of 1,300 labours where the pelvis was under 10 cm. conjugata vera, 72.5 per cent. were delivered naturally, and 27.5 by operative means. Hebosteotomy can be used in cases where formerly cæsarean section was done from relative indications. It is owing to the great danger of lacerations, not an operation for the general practitioner, and should be done only in hospital.

Hammerschlag, in reporting the cases from the Koenigsberg klinik, discards the superiosteal method, as it is only after the periosteum is torn that the bone can fall apart. He attempted in one patient to get a permanent enlargement of the pelvis by transplanting a piece of periosteum and bone from the tibia.

Baisch compares the child mortality of Saexinger, who makes common use of the induction of premature labour for contracted pelvis, and of Doederlein, who very rarely has recourse to it, and finds that it is about the same. Leopold had a similar experience.

Mayer discussed the question of the osseous healing of hebosteotomy wounds. Nine women were operated upon, and of these, six were examined later, and to five it was found that union was fibrous. Reviewing the position of affairs after operation, it seemed that any separation of the bone was favourable to fibrous union.

Walcher would place the limit of hebosteotomy lower. In one case he had operated with a conjugate of 6.2 cm., and the child lived. The time for the induction of premature labour should be placed later.

Bumm had done hebosteotomy 44 times in 4,000 labours without a maternal death. Bad bladder lesions were caused by separation of the legs, not by the needle. Too much weight should not be laid upon a permanent increase in the size of the pelvis, the delivery of the patient was the first consideration.

Franz had done 11, and lost one from thrombosis of the ovarian arteries. In two there were some difficulty in walking, and one had a hernia.

Fehling had operated in 20 cases, and found it difficult to fix the limit, as he considered it depended upon the sort of deformity of the pelvis. Hebosteotomy would take the place of perforation of the living child. He did not think that the induction of labour gave so bad results as some were inclined to think.

Von Rosthorn lost one patient from hæmorrhage after hebosteotomy. He opened up the wound, but could find no bleeding vessels and plugged, but the bleeding continued. The bleeding was purely venous.

Kuestner and Hofmeier were opposed to hebosteotomy, and favoured cæsarean section.

Zweifel, in reply, stated that he was pleased that the concensus of opinion was in favour of waiting for a spontaneous delivery after operating. He had advocated episiotomy some time ago. Bladder lesions did not follow symphyseotomy, only hebosteotomy, and unless this could be avoided, symphyseotomy was preferable. He was opposed to the induction of labour in contraction of the first degree; in contraction of the second degree, it was permissible. After symphyseotomy there was a permanent enlargement of the pelvis, but this was not proved for hebosteotomy.

Doederlein, in reply, said that the future of hebosteotomy depended, upon good primary results. The question of a permanent increase in the size of the pelvis was of secondary importance, but if it were as easily attained as Van de Velde said, then it should be attempted. Bladder lesions could be avoided by the use of the finger.—W. G. G.

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THE HYGIENIC AND DIETETIC TREATMENT OF PULMONARY TUBERCULOSIS.

BY

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Hygiene and diet are at present the chief factors in the treatment of pulmonary tuberculosis. It was Brehmer of Görbersdorf, in Germany, who demonstated at the close of the fifties that pulmonary tuberculosis was curable. It was Trudeau, of Saranac Lake, who first adopted Brehmer's methods in this country, and placed the hygienic and dietetic treatment on a solid basis in America. Cured cases of pulmonary tuberculosis have now grown to such large numbers, that through them physicians and the laity regard the consumptive as a hopeful case, and not one predestined to death.

The treatment of phthisis is really nothing more than a heightened hygiene of the body and mind. The life processes must be maintained at the normal, or brought back into normal physiological condition if diseased, and it should be the aim of the physician to try and avoid the most insignificant set-back.

Phthisis even in the early stages is a severe disease, and should be treated throughout the whole course with the greatest care, and with the most unwearied patience. Both physician and patient should be undaunted by the relapses which so frequently occur.

The management of the mental condition of the patient is a cardinal factor in the treatment, and at the very outset the physician should try to establish a bond of sympathy between himself and the patient. The patient needs a strong support, and looks to the physician to supply this. He must abandon himself to the physician with complete confidence. The physician must gain this confidence by thorough physical examinations, and by the clearness and definiteness of his direc-

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tions. I hold it as proper to explain the nature of the disease to the patient. By a candid statement of the condition, the patient is made aware of the serious nature of the disease. He is thus in a position to guard against accidents. It is very unfortunate that the lung specialist should so often hear from the patient the bitter complaint against his physician: "If my physician had only told me what was the matter with me, I would have taken better care of myself."

After we have explained to our patient the nature of the disease, we must then give him definite instructions as to his plan of life. Nourishment is one of the first matters discussed. In our health resorts we do not need to go into detail with regard to the amount and nature of food, but refer our patient to a suitable sanitarium, or boarding house. I may be permitted, however, to go a little into detail as regards the dietary rules for the tuberculous patient. It is our aim by means of a heightened nutrition to cover the loss which has already occurred. A good state of nutrition improves the blood, the strength, and the resistance of the cells. In patients who have had slight fever for many weeks, I have frequently seen the fever to quickly subside by change of climate and mode of life. The mere change of food and air has stimulated nutrition, and produced beneficial results. Dietary rules for the consumptive must be detailed, clear, and exact. We must prescribe the exact time of eating, and as far as possible the quality and quantity of his food. It is a good thing for him to start the day with a glass of hot water on rising. This helps to loosen the expectoration, and it also cleanses the stomach. Breakfast, 8 to 9: fruit, cereal, one or two glasses of milk, (cocoa, tea, coffee), meat, bacon, bread and butter, toast, rolls, corn bread or such like articles of food. Some patients take one or two eggs after each meal.

11 o'clock lunch: one or two glasses of milk, or one to three raw eggs, or a glass of milk followed by one to three raw eggs, or eggs beaten up in a glass of milk (egg-nog), or beef juice, or beef tea, chicken broth, prepared barley. It is the custom of many physicians to order one or two teaspoonfuls of one of the prepared concentrated foods, such as somatose, tropon, iron tropon, Heyden's Nahrstoff, lactoglobin, etc. These are added to any of the above liquids.

Noon meal, say, 1 o'clock (it is often advisable for the patient to rest for one-quarter to one-half hour before the meal is taken). Soup, entree, fish, roast, venison, fowl, salad ,pudding, crackers and cheese, one to two glasses of milk. This is followed by one-half to one hour of rest, perhaps of sleep.

Afternoon lunch, 4 o'clock: same as 11 o'clock lunch.

Supper, 6 to 7 o'clock, preceded by one-quarter to one-half hour of rest: Meat, either hot or cold, and vegetables, bread and butter, one to two glasses of milk.

Nine o'clock luncheon: same as at 11 and 4 o'clock.

It is thus seen that the meals consist of three full meals a day such as we have in any of our homes. Meat can be eaten three times a day. The noon meal and supper differ but little. The rest before and after meals is of great value, especially to those patients who have a feeble digestion.

It is advisable to weigh the patient every week, or every two weeks, and preferably at the same time of day and with the same clothes.

The patient should have a fairly mixed diet in sufficient quantities. An exclusive meat and egg diet does not fulfil our purpose. If the fatty tissues are deficient, fats should be given in every form which the patient can stand, especially butter and cream, which are easily digested. So also fatty fish, such as eels, salmon, sardines, and sprats should often be given him. In order to supply the demand for fats, many dishes, and especially vegetables, should be prepared with a great deal of fat, especially if the patient does not like fat.

Vegetables are easily digested in the form of purees, and are particularly of value because they make the meat more palatable. All forms of salads and horse radish are advisable. There should be a plentiful supply of vegetables with the noon meal. Carbohydrates which increase the amount of fat are also very necessary. They should be given as puddings, pastry, pies, food baked in fat, cakes, honey, the various kinds of bread, brown-bread, whole wheat bread, graham bread, bread and honey. Vinegar, lemon juice, mustard, etc., just in sufficient quantities stimulate the appetite. It is very important to have variety, and it is also important that the patient should not know the bill of fare in advance.

Meals should be taken at the same time, in order that the stomach may get into the habit of taking in food. They should be three in number, with in addition two or three lunches. If the patient's appetite is not good, it is better for him not to eat between meals. A good healthy household fare should be the basis of the diet.

These rules apply chiefly to patients that have a good appetite and a strong digestion. We frequently meet patients that have no appetite, and who may also have disgust for food. Both these symptoms may occur at any time during the course of treatment. When they occur at the outset of treatment, it is usually found that the constant sojourn in the open air, complete rest, and the change of climate will cause

great improvement. The rest for one-half to one hour before and after meals is also a great help. When loss of appetite and disgust for food occur later on in the course of treatment, they are frequently due to the fact that the digestive system becomes clogged. This is often due to the large amounts of milk and eggs taken by the patient. A good plan is to cut out the milk and eggs for about a week, give the patient a dose of castor oil, or calomel, or some other cathartic, and give him a tonic. I have found the combination of nux vomica and bicarbonate of soda taken half hour before meals to be very suitable. The bowels should, of course, always be attended to. Should these means fail to improve the appetite, a change of surroundings, if only for a few weeks, often causes great improvement.

Occasionally the loss of appetite depends on lack of care of the mouth and teeth. Food loses its flavour when the tongue is coated, and carious teeth interfere with chewing. Mechanical cleansing of the tongue with a spatula, care of the teeth, and the regular use of mouth washes are means to combat these conditions. Wet compresses over the stomach, or local moderately cold douches, or massage local and general do good. In one case Cornet was successful by using a weak faradic current for one-half hour before meals.

Milk plays such a part in the treatment of tuberculosis that I wish to give it special attention. It combines all the nutritional elements (albumin, fat, carbohydrates, salt and water). To maintain the normal equilibrium of the body, a grown person on an exclusive milk diet would have to take five or six quarts a day. As a rule a glass of milk with each meal, and a glass midway between each meal is sufficient. This represents about a quart and a half. This amount is well borne. My feeling is against large quantities of milk, and I prefer to have the patient use moderate amounts, and to make use of other nutritious foods. Very large amounts of fluid are apt to cause atony of the stomach. Milk can be taken hot or cold. In winter, or with a tendency to chilliness it is better to give it hot. When there is a weak stomach milk is better borne if given in small amounts, a few swallows at a time, and in combination with brown bread, toast, white bread, zwieback, etc. If drunk rapidly an indigestible curd forms in the stomach. When ordering an almost exclusive milk diet, Brehmer used to advise about two and a half ounces every quarter of an hour; *i.e.*, three to four quarts a day. When a patient is over-hasty, he should take the milk by teaspoonfuls. When there is a distaste for milk, it can often be taken if small quantities of coffee, tea, or lime water are added, or a little salt, borax, or bicarbonate of soda (a pinch). When there is a tendency to diarrhœa, it is advisable to add lime water;

and if there is constipation, cream or seltzer water should be added. When a patient becomes tired of milk, it is advisable to discontinue it for a week or longer, and to substitute for it, beef juice or some such substance, and then to recommence the milk. As mentioned above, it is also advisable to stop the milk entirely one day a week.

Almost all physicians recognize the value of forced feeding in tuberculosis, but great care should be taken that it is not overdone. Every stomach has its own limits, and if overworked, especially by two large quantities of liquids, may refuse food in every form. Forced feeding should therefore be employed up to the limits of the patient's capacity. When digestive disturbances occurs, a good dose of castor oil or calomel is useful, and the patient should be put on a light or fluid diet, or the stomach should be given absolute rest while nutrient enemata are employed for two or three days. A light diet should then be given for a few days longer, and then full diet.

One of the principal requirements in the treatment of pulmonary tuberculosis is the free use of pure air. Even in the country proper hygienic conditions are secured only by actual life in the open air. Unfortunately, many physicians still have vague ideas regarding the management of the air cure, and advise their patients to "Exercise a good deal." This advice frequently does a great deal of harm. Most patients when beginning treatment should take no exercise. My own feeling is that all patients beginning treatment should take no exercise. This period of rest will last for a different period of time for each patient, and no stated time can be mentioned. The patient, however, should spend the entire day in the open air. The tuberculosis patient gets benefit from the open air not only when it is sunny, dry, and when the wind is quiet, but just as much when it is damp, cloudy, and when there is wind and rain. There is no basis for the assumption that the patient should remain indoors in cloudy or wet weather. Care should be taken, especially in summer, that the patient should not be exposed to the direct rays of the sun. This often causes congestion of the head and lungs. The patient should therefore protect himself from the direct heat of the summer sun, and should keep in the shade. He should remain in the open air during snow and rain storms, or even in moderate fog. One thing, however, is essential; namely, that he should be under protection, and should not have wind or snow or rain blowing in on him. It is a matter of everyday experience that a patient protected from the wind and rain by a shield on the stormy side of his veranda, can stand intense cold. Heavy winds are a great source of danger and should always be avoided. They very quickly take warmth from the body, and thus do harm to a patient whose temperature is

in an unstable condition. Attacks of pleurisy or even pneumonia may follow exposure to wind.

Rapid changes of temperature and sudden falls should always be guarded against. This applies also to those falls in temperature which occur between four and six o'clock in the afternoon, especially in the spring of the year. At these hourse the patient should either go in the house if he feels cold, or should put on extra wraps. The mistake is often made by the patient of trying to guard against these sudden falls of temperature by clothing himself too heavily. Physicians occasionally see a patient with a thick woolen undershirt, a flannel shirt, a chest protector, a heavy sweater, a coat, then a fur coat over all. These patients try to keep from catching cold, and are the ones who are most subject to colds. This great warmth maintains a constant sweat and makes the skin oversensitive. I find that a thick woolen undershirt, an ordinary shirt or flannel shirt, waistcoat, coat and fur coat are all that are necessary. Occasionally, in very cold weather, a sweater is used. For walking, an ordinary cloth winter overcoat or pea-jacket is much more serviceable than the fur coat, as the latter is too heavy.

The various form of rubbings so much used in the continental sanatoria are not used in this country to the same extent. The patient, however, should be instructed how to cleanse himself. In private practice the patient has not the facilities for bathing and cleansing himself that the sanitarium affords. To patients who are not of a strong constitution, and who are practically afebrile, a good plan is to advise them to bathe the chest, arms and back with cold water every morning, and the legs at night. This should be followed with a rub with a coarse towel. The rub should be gently done, in order to avoid cough or hæmorrhage. Patients of a stronger constitution, and who at the same time have a good pulmonary condition, are permitted to take a full cold bath each morning. There is no need, however, to have the water colder than it is in summer. This is followed by a not too vigorous rub with a rough towel. A cleansing bath may be taken once a week at a temperature of 90° to 95° F. This is followed by a rub off with moderately cold water. In cases of hæmoptysis one should be very cautious with baths, or should discontinue them entirely and substitute cleansing of each part of the body in succession.

Cold sponging and cold baths tend to harden the body against variations of temperature, and tend to prevent the patient from catching cold. They should be used only under the advice of the physician.

Of equal importance with good food and fresh air is the matter of exercise and rest. If the patient is to spend the entire day in the open air, it is important for him to know how to fill in his time. At the

onset of treatment rest is very advisable. We often see cases to recover by merely leading an open air life, but the vast majority of cases that do not take systematic rest, fail to recover their health. When a patient comes under observation for the first time, I almost invariably advise him to take absolute rest for rather an indefinite time. If there is no fever, this period will last from one to several months; if there is fever it will last longer. Each case has to be considered separately. During this time the patient gradually becomes convinced that he has a serious disease, and that he has to treat it seriously in order to recover his health. At the same time the physician gains a control over the patient which is of great benefit to both.

In the management of our cases we should remember that every exertion costs the body albumin, climbing more than walking, walking more than sitting, and sitting more than lying down. The more quietly the patient lies the less substance does he consume. With fever cases rest is strongly indicated. To combat the loss of appetite which sometimes results from prolonged rest in bed, and also to keep the functions of the skin and muscles in good condition, massage of the extremities and abdomen may be employed, but not of the chest. It may be used for half an hour once or twice daily.

The rest cure requires certain special arrangements. Fever patients should be brought into the open air with the least possible cost of exertion. If possible the bed, with the patient in it, should be wheeled from the room out on to the balcony. Sometimes it is necessary to carry the patient out of doors, and he there spends the entire day. For patients with no fever or slight fever the Adirondack Reclining Chair is very comfortable. Chairs should be fitted with an apparatus which makes it possible to read and write without exertion.

Patients should be gradually accustomed to be continuously in the open air, and where it is possible may sleep out with advantage. When it is advisable to allow the patient to exercise, the amount of exercise should be definitely stated. He should begin with easy exercise, and should limit it to ten or fifteen minutes, at first only on level ground. This may be allowed every second day for a short period, say, for several weeks, then every day for several weeks, then twice a day. The old rule of Brehmer was—"The healthy man sits down because he is tired; the consumptive should sit down so as not to become tired." Patients should be told that all over-exertion is poison, and that their feelings should be guides at all times. Acceleration of the pulse, perspiration, palpitation, rise of temperature, feelings of weakness, discomfort and headache, are all signs that he has overstepped his limit of exercise. When the patient stands these little walks without harm, and when the

weight increases or holds itself at its height, one can allow an increase, but always under careful supervision. Mountain climbing should not be allowed.

LISTERISM—ANTISEPSIS AND ASEPSIS.

BY

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The personality and the work of Lord Lister are both singularly unique. His nobility of character, his remarkable modesty, and his exquisitely charming manner combine to make him a very lovable man. To appreciate to any considerable extent these traits in Lister one must have some acquaintance with him—to appreciate them fully, we are told, one must know him intimately. Fortunately, we in Canada know him fairly well, and we certainly love and respect him very highly.

From a professional as well as a humanitarian standpoint we have to consider his magnificent work in surgery. It is quite unnecessary, however, to go into details. What Lister has done for surgery, what he has done for humanity cannot be properly described in words; but the whole civilized world worships him as a hero, and a wonderful epoch maker.

We shall presume that Listerism includes the principles and practice of antiseptic and aseptic surgery. Several years ago Sir Frederick Treeves spoke as follows: "Lister created anew the ancient art of healing: he made a reality of the hope which had for all time been the surgeon's endeavour; he removed the impenetrable cloud which had stood for years between great principles and successful practice, and he rendered possible a treatment which had hitherto been but the vision of the dreamer. The nature of his discovery—like that of most movements—was splendid in its simplicity, and magnificent in its littleness. To the surgeon's craft it was the one thing needful. With it came the promise of a wonderful future; without it was the hopelessness of an impotent past."

We find that a certain amount of confusion has arisen in regard to the terms antisepsis and asepsis, and also in regard to antiseptic and aseptic methods. A writer on this side of the Atlantic, voicing the opinions of a certain number, says: "The theory and practice of what is known as antiseptic surgery are rapidly giving place to the more rational science and art of aseptic surgery." A writer in Great Britain,

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says,—"Antiseptic surgery was the forerunner of aseptic surgery. It was found that it was unnecessary to attempt the continual destruction of germs if there were no germs to destroy. Hence arose the present aseptic system."

Another writer in Great Britain (Sir Hector Cameron), says:—"Every treatment which is directed against sepsis, no matter what the means be which are employed, is surely antiseptic treatment." He also tells us that the word asepsis was devised by Lister to denote the condition of a wound from which sepsis is absent. In the early days of Lister's treatment some surgeons spoke of a wound as being "in an antiseptic condition"—and of an operation as being followed by a thoroughly "antiseptic result." It was to avoid such awkward phraseology that Lister suggested the adoption of the word aseptic, a word which he afterwards found had been used by Hippocrates. Sir Hector adds: "To speak of the aseptic treatment of wounds is clearly as confusing and inelegant as to speak of the antiseptic condition of wounds." (*British Med. Jl.*, April 6th, 1907.)

Many (I hope most) of us concur in Sir Hector's opinion that the word aseptic has been sadly misapplied, but we must recognize the fact that the terms antiseptic and aseptic are now applied to surgical methods in a somewhat definite way. The antiseptic treatment of wounds includes preliminary disinfection of skin, hands, instruments, etc., the use of antiseptic solutions during the operation, and subsequent antiseptic dressings. The aseptic treatment of wounds includes also preliminary disinfection of skin, hands, instruments, etc., but not the use of antiseptic substances during the operation, nor in the subsequent dressings.

Professor Kocher, of Berne, may be cited as one who has been much misunderstood. He himself is partly responsible for such misunderstanding, because he uses the terms aseptic and antiseptic, according to his translator, in a vague and perplexing way. For instance, he speaks of aseptic wounds, aseptic methods of operation, and aseptic cases. He does not, however, as I understand him, disassociate aseptic from antiseptic methods. For instance, he always uses antiseptic ligatures, *i.e.*, ligatures carefully prepared first in ether, second in alcohol, and third in a 1-1000 solution of corrosive sublimate. He also uses "thin silk because it is more easily impregnated"; and he states definitely that "it is only antiseptically prepared silk which safeguards us against both primary and secondary infection." Professor Kocher has been chosen for special mention because of his deservedly distinguished position in the surgical world, and because we have been so frequently told that his

methods are purely aseptic according to the modern definition of the word as given above.*

Many English surgeons acknowledge that antiseptics are more or less irritating, and, therefore, should be used carefully and judiciously. They think that the aseptic methods require more attention to details than the antiseptic methods, and also that they are quite "incompatible with private practice" (Sir Hector Cameron). Cheyne and Burghard express a positive opinion that the aseptic methods can only be carried out by skilled and experienced bacteriologists in well equipped hospitals. They believe that it is almost impossible to carry out the methods in all their details in private practice. When great surgeons of England and other countries hold these views the surgeons who teach aseptic methods to medical students are assuming grave responsibilities. Lister aimed at simplicity in surgical practice, and taught methods which could be carried out in the "back woods" as well as in the best modern hospitals.

In the interest of suffering humanity one may ask: Would the general adoption of the modern aseptic methods instead of the antiseptic methods be an advance movement or a retrograde step? Would it be well to advise our graduating classes to use aseptic dressings, and avoid antiseptic dressings, in the treatment of compound fracture?

We probably all agree that the main feature in surgical treatment is absolute cleanliness. It happens, however, that if we have not learned certain "simple" lessons from Pasteur and Lister we do not understand what cleanliness means. When men are taught that nothing is required in their work except cleanliness a large proportion of them will soon become dirty in a surgical sense (and sometimes otherwise). May not a similar thing happen if we teach that aseptic methods are to be employed and antiseptic methods avoided?

It happens, fortunately, that at the present time both the antiseptic and aseptic methods are producing admirable results. Under such circumstances we are loath to offer adverse criticisms as to the work of those who are employing aseptic instead of antiseptic dressings to such a large extent. We may even admire the paraphrenalia, though we cannot always understand it in all the details. I was slightly perplexed on one occasion when I saw a baldheaded surgeon, properly arrayed in white robes, with a white cap on the top of his head, and his copious beard uncovered and waving gracefully over the field of oper-

* Since the preparation of this paper I have learned from Dr. Arthur Wright that Professor Kocher sometimes uses antiseptic substances in his dressings for aseptic wounds. One of his favourite methods is to cover the wound with iodoform gauze—place sterile gauze over this—and then seal with collodion.

ation. I presume that Mikulicz when alive would not have been quite satisfied in such a case.

This subject is very important from an obstetrical standpoint; and for that reason those who practise the art of obstetrics watch closely the methods of the surgeons and study carefully the results of their work. Many obstetricians recommend what they term aseptic midwifery, but they all, so far as I know, advise antiseptic methods when they deem them necessary to secure aseptic results.

For the sake of brevity I shall give my own opinions as to a few points in connexion with this large subject without discussing in detail the views of others. It seems fitting to recommend *antiseptic and aseptic midwifery,* especially if aseptic methods are to be considered by some "more rational" than antiseptic methods. Whether we call labour a physiological or a pathological process we know that we have wounds and bruises in the majority of cases.

To prevent confusion as to certain simple terms it will be considered that "sterile" means — free from all micro-organisms; "aseptic" means — free from septic micro-organisms.

Our field of operation is composed of:—1. Septic tract, comprising the vulva and all adjacent parts. The skin covering these parts is septic, and cannot be made aseptic; and, therefore, wounds of the fourchette and perinæum are septic, or soon become so. 2. Aseptic tract, comprising the vagina, and lower part of the cervical canal. We learn from bacteriological research and from clinical observation that the vagina of pregnancy, although it contains many organisms, is aseptic, *i.e.*, it contains no pathogenic germs. Even when streptococci are introduced from without they are soon destroyed by the vaginal secretions. This is true as to all cocci with the single exception of gonococci. As a consequence, when there are no gonococci present, wounds of the vagina and cervix are aseptic. 3. Sterile tract, the uterine cavity.

Let us consider what occurs in a normal labour left entirely to Nature. After uterine contractions have continued for some hours the parts are dilated. The membranes are ruptured, and a certain amount of sterile fluid is poured into and through the vagina, and some organisms are washed out. The head and body soon pass through the vagina, and delivery results. During their passage the mucous membrane of the vagina is stretched and made smooth, and more organisms are pushed out. Then follow more liquor amnii and blood, shortly after the placenta, then come blood and lochia for some days. We shall suppose there was a tear of the cervix, a tear of the vagina, and a tear of the perinæum, the tear in each case being a slight one. The woman made a good re-

covery, although, or perhaps, because no doctor or midwife had touched her. What became of the wounds? The edges of the cervical wound came together. The cervical mucous membrane on one side and the vaginal mucous membrane on the other side were covered with a certain amount of sterile fluid. No finger, no instrument, no stream of water separated the edges of the wound, or introduced septic germs. The wound healed rapidly, probably by first intention. The vaginal wound healed in a similar way. The flow of the fluids, which are sterile for sometime, continually in an outward direction, had kept these wounds aseptic. We can probably agree thus far, although we may disagree as to whether the vaginal canal has been made absolutely sterile in the meantime. Without discussing that point, which is not important at this juncture, we have to consider the perineal wound which has not fared as well as the others. The edges came together, but did not remain in good apposition. Some pathogenic germs soon entered from the septic skin, and an interesting conflict occurred. The sterile fluids at first washed the organisms away. Ofter a time these fluids diminished and some of the septic organisms remained, but these were attacked by cells of the living healthy tissues, and held in check. In the meantime lymph has been thrown out, granulations were formed, and by the fourth day had filled the wound, and danger of absorption had passed. Young fibrous tissue was developed, considerable contraction took place, epithelium spread over the surface, and the wound was soon healed. Nature in this instance did magnificent work in her own inimitable way. He is a wise man and a good physician who does not interfere with Nature in such a case. Our great desire in the practice of obstetrics is to obtain a knowledge which will enable us to assist Nature in an intelligent way. Our aim is to avoid both extremes—the meddlesome and the careless methods.

As to antisepsis and asepsis we in Canada do not differ on certain important points. We think that the patient, her surroundings, the accoucheur and his assistants (if there be any) should be clean. As a matter of routine we generally use rubber gloves in the Burnside Lying-in Hospital. Our rule is that the attending accoucheurs may, and the internes must use them. In cases of sepsis the gloves should always be worn, both in the interest of the operator, and also in the interest of the patients he subsequently attends. Of course, the hands should be as clean as possible, with or without gloves. Our custom is to use antiseptic solutions during labour, especially as to our hands and vulvar dressings. Even those who practise aseptic surgery will not probably object to this in midwifery practice.

As before mentioned it is generally recognized that the vagina is an aseptic tract. On this account many obstetricians in various parts of the world use simple sterile gauze for plugging the vagina before labour. It happens, however, with such material that the tampon becomes foul in twelve hours, while with iodoform or some other form of antiseptic gauze the tampon may be left in one or two days (or more, in some cases) without becoming foul. It is generally conceded now that antipartal douching is unnecessary if not harmful.

There are two or three other matters of vast importance to which brief reference will be made. In doing so it will be more convenient for me to speak in the first person. In the first place I do not think that the vagina ever becomes, nor do I think that it can ever be made sterile by either the surgeon, the gynæcologist or the obstetrician. After labour, though a number of organisms may be flushed out and forced out by the passage of sterile discharges, child and placenta, some of these organisms remain. If lochial discharges are retained in the vagina for a few hours they always become foul through the action of these (let us call them) saprophytic germs. Then these organisms multiply with great rapidity, pass up into the uterus, and cause decomposition of the blood, bits of placenta, or membranes. We have then foul lochia and constitutional symptoms indicating sapræmia.

Local treatment together with the administration of calomel and saline cathartics will generally cure in such cases. Let the patient be anæsthetized. Introduce the gloved hand within the vagina and fingers within the uterus. Scrape gently the debris from the uterine wall, wash out the uterine cavity with a hot salt solution, pack the uterine cavity fairly tightly, and the vaginal vault somewhat loosely, with 5 per cent. iodoform gauze. This gauze may be left in the uterus for twenty to thirty hours, *i.e.*, it may be introduced one day and removed at almost any time the next day. In nearly all cases of pure sapræmia this treatment carried out within three, or, perhaps, four days after labour will produce satisfactory results. This is practically Dührssen's method as recommended something like fifteen years ago, and is simply one of the modifications of intrauterine treatment which have been carried out for about twenty-five years. These methods were so successful that they encouraged surgeons and obstetricians to employ very radical methods of intra-uterine treatment in cases of septicæmia with most disastrous results. Strong antiseptic solutions were injected into the uterine cavity, and caused more or less necrosis of the tissues. Curettes sharp and dull were used with most deadly effect. Fortunately, there has been a reaction during the last few years. With many who still believe

in intrauterine medication for septicæmia alcohol is considered safer than carbolic acid and other strong germicides. Many of us hold the opinion that no metallic curette should ever be introduced into the puerperal uterus. When I see in consultation a patient with serious symptoms after labour, and find that the attending physician had used a curette, I form the opinion that if the patient has sapræmia she may recover: if she has septicæmia she will die.

While one intrauterine douche may be of use, especially when one suspects sapræmia, the continuation of such douches when no offensive debris is washed out, *i.e.*, when the patient has septic infection, is always injurious. Even in cases of sapræmia one treatment, as described, is generally sufficient.

There is another class of cases which cause much anxiety. Take the following example: a healthy primapara had slight febrile symptoms commencing the second day after labour; some odour in lochia the third day. Dr. A., who had charge, ordered vaginal douches; some improvement on the fourth day; but the patient was not quite well for the three following days. Dr. B. saw the patient with Dr. A. on the seventh day. Pulse was 100°, temperature 100°, some malaise, lochia was slightly offensive. Local treatment was carried out as follows:—patient anæsthetized, rubber gloves used, hand in vagina, fingers in uterus gently scraped the walls; little debris slightly decomposed; weak antiseptic douche used; utero-vaginal iodoform gauze tamponade; plug removed the following day; patient grew worse after this treatment; had the ordinary symptoms of a somewhat acute septicæmia. Died in about sixteen days after this treatment, or twenty-three days after delivery. Post-mortem examination showed septicæmia.

Let us suppose that this was at first a mild septicæmia. We are told that streptococci are frequently found in cases which are clinically diagnosed as sapræmia. It seems probable that the presence of saprophytes attracts in some unexplained way streptococci, which are practically ubiquitous, and, perhaps, increase their virulence. In this instance there was probably a mild septicæmia. Nature was making a vigorous fight against the invading organisms and their toxins. She was throwing out a wall of cell infiltration which was acting both as a barrier against the organisms, and a filter of the toxins. This is something like the granulation tissue which we find in external wounds. Within this layer of tiny cells, or "reaction zone" we find a necrotic zone containing the attacking organisms.

In carrying out any local treatment we have to consider this reaction zone. If, by our manipulation we injure some of these tender cells we

open vessels which will at once allow the ingress of the attacking organisms. There seems but little doubt that even the smooth gloved finger tips frequently injure enough of these tender cells to practically destroy the barrier which keeps these little enemies out of the system. If it be granted that manipulation either with the finger tips or with a curette is dangerous, the question arises, What are we to do? We have found that antiseptic solutions which are strong enough to destroy virulent streptococci cannot be injected with safety into the uterine cavity.

Without further comment I desire to express my opinion (and I do so with much diffidence) that after the fourth day following labour, neither the finger nor the curette should be introduced into the uterine cavity. If there is an offensive discharge, not due to retention of lochia in the vagina, an intrauterine douche of warm salt solution may be used. If the return flow brings away some debris the douche may be repeated once or twice at intervals of some hours. If the return flow is clear the douche should not be repeated. In administering the douche, no hard nozzle should be used. The operation, even when performed with the greatest care, is probably not free from danger. Most of our modern surgeons do not consider it advisable to wash out a septic wound, but they all desire free drainage. It seems probable that many obstetricians do not pay sufficient attention to the drainage from the uterus and vagina. Much can be done to promote free drainage by raising the shoulders of the patient, and turning her slightly on her side, at regular intervals.

In considering the surgical aspects of obstetrical procedures we desire to acknowledge the great debt we owe to the surgeons; and our methods of treatment, as learned largely from them, may be briefly summarized as strict antisepsis for the external parts and strict asepsis for the internal parts. And let me say in conclusion, that for the measure of success which now attends our efforts on behalf of woman in her hour of need—to Lister be all the honour and all the glory!

ACCIDENTS IN THORACENTESIS.

BY

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The dangers feared by the early clinicians in tapping a thorax were those of letting air into the chest, of collapse of the lung, and of fatal syncope. They were also mindful of the occurrence of pulmonary œdema,

and several cases with such complications are reported. Exploratory puncture, so far as one can gather from the literature, was seldom, if ever undertaken. On the other hand, even as late as 1830-1845, physicians and surgeons on both sides of the ocean discussed tapping the chest, deferred the operation, and the patients died.

Even as late as 1843 the school of French physicians watched patients die with pleuritic effusion, believing in the law enunciated by Louis that "pleurisy is never the immediate cause of death." In that year Trousseau ventured on his own responsibility to operate, avoiding a consultation lest his plan of treatment should be set aside.

The accidents or untoward events which our forefathers feared in bygone days have been largely prevented by better means of diagnosis and by the use of safer instruments. A strong desire to make a more complete and definite diagnosis in obscure cases prompts a more frequent use of the needle, and it is apparently in many of those uncertain, or doubtful cases that the more serious accidents have taken place. Two of the cases reported in this paper illustrate the most serious complications possible, short of fatality. Their rarity alone would be a sufficient reason for placing them on record, while the gravity of the symptoms and the occasional fatal termination suggest the necessity of a wider knowledge of such a complication in an operation so simple and so frequently performed.

Case I. (5678). Male, aged 28 years; was admitted on the 9th February, 1901, for dyspnœa, cough and weakness of the back. His history, so far as it serves the purpose of illustrating this paper is thus briefly told. Early in December of 1900 he was injured in his back by a falling tree. There was no history pointing to chronic disease of his lungs. He suffered for some weeks with pain in his chest, on both sides. Dyspnœa gradually developed and became very severe. Only on going about would he have cough and severe choking fits.

When admitted there was a marked angular curvature of the spine involving the 10th, 11th and 12th dorsal and 1st lumbar vertebræ. The heart impulse was faintly felt in the 4th right interspace, and the left half of the thorax was dull throughout. The dyspnœa was so marked and the heart displaced to such a degree that the left pleura was aspirated on the 10th February, and twenty ounces of slightly turbid serum were taken away, giving the patient much relief. The dyspnœa returned with signs of increasing fluid, and on the 12th another aspiration was done, and on this occasion fifty ounces were easily withdrawn. After this operation cyanosis set in and cough was troublesome. About eight ounces of albuminous fluid like starch-water with a specific gravity of

1012 were expectorated. Under stimulation he recovered from this attack. The fluid did not subsequently accumulate to such an extent as to greatly embarrass him.

This case, however, ran an unfavourable course. Signs of spinal cord compression developed, dysphagia, and cough induced by swallowing. In May, during a fit of coughing, he spat up several ounces of pus, and as no pus had been found in the pleura we suspected an abscess in connexion with the bone disease in the vertebral column discharging through a bronchus or the trachea. The autopsy established this diagnosis—a prevertebral collection of pus communicated freely with the trachea through an opening in its posterior wall. Both lungs were implicated—the left collapsed to a considerable extent—bound down by pleural adhesions: on section rather beefy looking. The right presented a condition of chronic broncho-pneumonia though no tubercle was found.

In this patient one had favourable conditions for the complication of albuminous expectoration—a patient weakened by prolonged disease of the pleura and spinal column, cardiac displacement, and the withdrawal of a large amount of fluid. It seems highly probable that the prevertebral pus collection was chronic and present therefore to some extent at least when the patient was operated upon.

Case II. (9941).—Male, aged 46; was admitted complaining of cough, expectoration and headache. He had not been in his usual good health for several months and a few weeks before coming to the hospital he contracted a *bad cold*. This compelled him to take to bed. He was feverish and coughed considerably, expectorating some blood-tinged sputum. Signs were present in the right lower lobe and were such as led the physician in attendance to suspect fluid. An exploratory puncture was made, but no fluid was withdrawn. The findings on ordinary physical examination could be explained only by a pneumothorax. The fluoroscopic examination was equally positive.

The case progressed favourably, no bacilli were found in the sputum and no fluid was made out in the pleura—we made repeated examination for fluid, but it could not be demonstrated.

There may always be conjecture concerning the cause of this patient's thoracic condition. The view taken of the case when all the evidence available was weighed, was that the patient had broncho-pneumonia, or a severe bronchitis with atelectatic lung, and that in exploring the chest the lung was injured and air escaped into the pleura.

The absence of sudden onset, the fact that no fluid was found in the pleural cavity, the favourable course of the case, with adequate lung expansion, and the absence of tubercle bacilli in the sputum, when con-

sidered in the light of the fact that the characteristic signs developed shortly after a negative exploration, leave but little doubt as to the relation of the pneumo-thorax and the thoracentesis. The report, recently received, of the patient's good health after two years, favours the view, that at all events, pneumothorax in this instance was not likely due to the great cause—pulmonary tuberculosis.

There seems good reason to believe that pneumo-thorax occurs much more frequently than one is led to conclude from the number of cases reported upon. They escape observation and the air is rapidly absorbed.

Case III.—Male, aged 57, blacksmith and boilermaker; was admitted on the 26th of May, '05, ten days after the sudden onset of his illness, following exposure to cold. He was the subject of fever, weakness, cough and pain in the left side of the chest near the base of the lung. The physical signs observed over the painful area were dulness on percussion from the third rib downward, and into the axilla and well down over Traube's space. The breath sounds were distant and in the axilla a few moist rales were heard. Fluoroscopic examination revealed a cloudiness over the lower portion of the left lung-field, with no shadow over the right lung-field. The heart was not displaced.

On the 27th of May an exploratory puncture was made in the left axilla resulting in the withdrawal of but a few drops of frothy blood-stained fluid. It was thought that during the next few days the signs cleared up somewhat, but the temperature ran an intermittent course, and subsequently the dulness was, if anything, more pronounced. The patient had coughed throughout his illness and the muco-purulent expectoration was sometimes streaked with brown, resembling altered blood, and at other times it was distinctly blood-stained. No tubercle bacilli were found, although they were frequently looked for. Another exploratory puncture was made about three weeks after, *i.e.*, about the end of June, with the result that but a few drachms of clear fluid were withdrawn. On the 1st of July, the previous attempts having been rather unsatisfactory, and in the light of such positive evidences of fluid, it was again decided to use the needle, and again practically the same result followed. Another week went by without improvement. Pain was complained of over the left side of the abdomen, made worse while at stool. He vomited occasionally, and a small area of œdema was observed over the lower portion of the left thorax. We felt that yet another attempt to solve this rather difficult case should be made and, accordingly, on the 8th of July, for the fourth time, thoracentesis was done in the hope of finding pus or an abscess. An exploratory puncture was made in the 8th interspace in the posterior axillary line; the

patient lying on his right side with the head somewhat elevated. Immediately following the insertion of the needle the patient was seized with alarming dyspnœa and collapse, at the same time he spat up a considerable quantity of blood. His face became an ashen hue, the sphincter ani relaxed and bowel contents discharged; the extremities were cold and there was involuntary urination: the pulse very rapid (142) and weak. The right lung, hitherto quite clear, was filled with moist rales, while an ominous rattle was heard in the throat and trachea. Stimulants were promptly applied (heat, brandy, etc.), and the patient gradually returned to his former condition. Within four hours the right lung was again clear. No additional evidence was forthcoming concerning the state within the pleura. The conclusion arrived at was that exploratory puncture in this case would be abandoned! The course was not favourable. Although improvement followed and the lung cleared up to some extent, the patient remained in the ward until the 20th of August. When discharged there were still signs of considerable dulness at the left base. The diagnosis made was of delayed resolution of an acute lobar pneumonia, pleuritis with slight effusion, chronic nephritis.

Unfortunately we have not been able to follow this patient for a subsequent report.

The alarming symptoms following our fourth attempt to clear up the diagnosis were unattended with any albuminous sputum. There was no convulsive seizure, the signs and symptoms were those of severe shock.

Case IV.—Concerns a girl, aged 10½ years, who was admitted February 11th, '07. She had cough, pain in the right side, fever and vomiting, with general soreness. The past history showed that the patient had suffered two attacks of pneumonia—at the ages of six and eight years—that she took "*cold*" readily and that in November, 1906, she took a bad cold, and had not been well since, going to school for only two days throughout the winter. On the 9th of February the onset of the illness which brought her into the ward was marked by a brief chill and vomiting and the setting in of the symptoms already mentioned.

Signs of disease are discovered in the right lung occupying a position in the lower portion of the upper lobe and possibly in the apex of the middle lobe. The signs suggested infiltration—and yet with the history of lowered state of the patient's health for some time and her rather erratic temperature curve, it was thought that one might have to do with a localized interlobar empyema. A skiagram was accordingly taken, and established the fact only of a shadow, rather wedge-shaped, extending outward from the lower portion of the upper lobe and occupying a part of this in all probability. The temperature did not fall

typically, as in a lobar pneumonia, and remain down, but showed a mild febrile course after what may have been termed a crisis.

Exploratory thoracentesis was done on the morning of February 23rd. The first puncture with a medium sized exploratory needle was made in the post-axillary line between the fourth and fifth ribs, the needle directed upward toward the region affected as indicated by physical signs and skiagram. This was done under ethyl-chloride spray and seemed to be thoroughly well borne. It yielded a negative result. A few minutes later a second puncture was made in the anterior axillary line and between the same ribs the needle still directed upward. No fluid was found, and the needle was immediately withdrawn without any attempt to move it about in the pleura. No unusual anxiety or suffering was manifest during these two punctures. Immediately on withdrawing the needle from its position in the anterior axillary line, a peculiar respiratory sound was heard, the head was suddenly drawn forcefully back, the whole body became rigid, the teeth firmly closed, the sphincters of the bladder relaxed, the face became cyanosed, and the skin over the body and extremities was marked with areas of marble whiteness and dusky redness. The pulse could not be felt—the respiration was suspended. Early in the seizure a little blood came from the nose as the head was so strongly retracted and the mouth closed. The rigidity lasted about twenty minutes and relaxations set in with some clonic spasms. The mottling of the skin gradually gave way to a uniform pallor and duskiness, and unconsciousness continued for fully one hour. Promptly with the setting in of these most alarming symptoms the foot of the bed was elevated. Artificial respiration was begun, and strychnine given hypodermically. It was impossible to adopt tongue traction as the mouth could not be forced open without breaking the teeth. The patient recovered consciousness, recognized those about her, but she was excitable restless, crying and complaining of headache, especially after the attacks of vomiting which recurred at intervals during the first afternoon. The vomitus consisted of coffee ground matter with traces of bright blood and milk curds. At six o'clock she complained of being totally blind; her pupils were dilated and inactive. For a time everything went on favourably, the patient passed urine and fæces voluntarily during the early part of the night (23rd February), and she was quiet most of the time, sleeping at intervals. Shortly after midnight (12.40) convulsive seizures set in and recurred until 4 a.m. They began usually in the left arm, and sometimes in the left side of the face, spread to the left leg and then became general. They usually ended as they began, but the right side of

the face or the right arm was sometimes in spasm after the spasm in the muscles on the left had ceased. These seizures recurred at intervals varying from a few to twenty minutes, and their duration varied also from twenty seconds to two minutes. The time between the spasms lengthened with succeeding attacks, and, after the thirtieth convulsion was over at four a.m., she remained very quiet and apparently comatose until eleven a.m. (24th February). When she awoke about noon she was somewhat irrational, but this state gradually disappeared. It was noticed, however, that there was a definite paresis of the left arm and leg. She was very irritable and resented being disturbed in examinations and questioning, etc.

On the 25th she admitted that she saw but indistinctly. There were general signs of improvement on the 28th. She seemed again quite normal, eating and sleeping and taking an interest in the events in the ward. As to her visual power, for sometime there was considerable doubt for at times she said she could not distinguish between different colours, and again her evidence would be contradictory.

The pulmonary condition improved, the dulness cleared up, and she went out practically as well as ever with a diagnosis of lobar pneumonia. These two cases yielded alike negative results, so far as concerns the finding of fluid. There is no doubt that the lung was penetrated in each case, as blood came into the mouth in an astonishingly short time after the parietal puncture was made, and it is equally certain that in each case the needle penetrated a diseased lung. In the one case signs of collapse were prominent from the first, while in the other collapse followed immediately upon the spasmodic seizure. Fortunately, the cases terminated favourably, a contrast to the issue not infrequently recorded in such accidents.

Some have explained the fatalities by asphyxia—the blood in the bronchi accounting for the death; others again conclude that death follows loss of blood—the patient bleeding through the trachea into the mouth and stomach. In cases three and four we had signs of loss of blood, but not to such a degree as to account for the symptoms present, and one is forced to seek another explanation of the alarming sequel of thoracentesis. The observations of Brodie and Russel on reflex cardiac inhibition throw much light upon this subject. From their experiments on animals they conclude that, "of the branches of the vagus excitation of the central end of which causes reflex inhibition of the heart, the pulmonary fibres are those which produce the most marked reaction. . . . . .

"The connexion of the respiratory tract with the cardiac inhibition centre is very close. . . . . Excitation of the pulmonary nerves

also acts upon the respiratory and vaso-motor centres producing arrest of respiration and a fall in blood-pressure."

It would appear therefore reasonable to conclude that in these two cases, three and four, where we certainly punctured a diseased lung, we stimulated at the same time a pulmonary filament or branch of the vagus, and there followed reflexly, cardiac and respiratory inhibition with lowered blood pressure and marked vaso-motor disturbance, as shown by the mottling of the surface—the spastic and paretic areas over the skin. The lowered blood pressure inducing nutritional changes in the cells of the cerebral cortex, may account for the irritability, the recurrent convulsive seizures, the amaurosis and the hemiparesis.

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EPIDEMIC CEREBRO-SPINAL MENINGITIS.

BY

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The subject for discussion to-day in this section, Epidemic Cerebro-Spinal Meningitis, is one which, owing to the numerous outbreaks of the past few years, has awakened a very considerable interest.

Just at the time of our last regular meeting, that of Halifax, a moderate epidemic prevailed in certain districts of Nova Scotia, and members of this Association were enabled at that time to study some of the cases. We have, however, been remarkably free from the disease in Canada and, with the exception of occasional sporadic cases in Ontario which I have had an opportunity of studying bacteriologically, my personal experience has been slight, and, consequently, my contribution to the etiological side must be largely an abstract of the work of others. Fortunately, the task is a comparatively light one, since the past few years have witnessed outbreaks of considerable magnitude which have been carefully studied, notably the Boston epidemic, the great New York epidemic of 1904-05 with about 4,000 cases, and especially the epidemic of Upper Silesia, where there were over 3,000 cases

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with 2,000 deaths. Still more recent are the studies upon the Belfast and Glasgow outbreaks.

As a result of the investigation of these epidemics, we may consider that most of the etiological difficulties have been cleared up, although there are still important points upon which we still require enlightenment.

To Weichselbaum in 1887 we owe the first recognition of the organism which to-day we believe to be always responsible for epidemic meningitis, and to which he gave the name diplococcus intracellularis meningitidis, now called either diplococcus intracellularis or the meningococcus.

The fact that the diplococcus lanceolatus or pneumococcus is frequently responsible for cases of meningitis in children, sometimes in the absence of definite pulmonary involvement naturally leads to some confusion. It was only after the study of a number of typical epidemics that the clear cut distinctions were brought out and Weichselbaum's contention as to the independence of the two diplococci substantiated.

One of the most important contributions to this came from the work of Councilman, Mallory, and Wright in their study of the Boston epidemic.

To-day the position of the organism is well established and it can without difficulty be differentiated not only from the diplococcus of pneumonia, but also from certain Gram-negative cocci such as micrococcus catarrhalis, which occur in the nasopharynx and with which it is much more likely to be confused than with the pneumococcus.

The organism in smears appears as a typical diplococcus which perhaps resembles the gonococcus more than any other form; the diplococcoid arrangement is well marked both in smears from pus and in cultures, the pairs of individuals showing flattening of the opposing surfaces which is so characteristic of the gonococcus.

In smears from the fluid obtained by lumbar puncture during life or in the exudate from the meninges at autopsy, the organisms are commonly found within the leucocytes, but they are not necessarily always intracellular, this being simply an indication of the active phagocytosis which occurs in the exudate.

When stained by the Gram method, it loses the dye; it is a Gram negative organism. This may be considered one of the most important characters as it retains it throughout long continued growth upon artificial media, and it serves to differentiate it at once from the pneumococcus which is Gram positive. This Gram negative character was for a time considered by some to be uncertain, but the studies of the last

five years have conclusively shown that reports of Gram positive meningococci were due to the admixture of other forms.

This inability to retain the Gram stain is the more important on this account that when outbreaks occur at a distance from laboratories, the only characters upon which in early cases a diagnosis of the epidemic character can be made may be this one, combined with the morphology of the organism in the smears from lumbar puncture fluid since, on account of the slight vitality, it may die before the material reaches the laboratory. The importance of the early diagnosis of cases will be seen when we consider later on the epidemiology of the disease.

It would hardly be of interest to the Section for me to go into any minute details of the cultural characters although, as we will see, they are of the greatest importance, especially when it becomes necessary to study the flora of the nasopharynx of persons in contact with the patients. Suffice it to say that although the organisms may grow upon a variety of media, its best and most characteristic growth is obtained upon media such as ascitic fluid agar, which contain human serum constituents. Park, of the New York Department of Health, has shown that sheep serum agar is also an exceedingly good culture medium. Upon this it grows fairly luxuriantly, but it dies out quickly, and cultures must be transplanted at short intervals to maintain its life. Of practical interest are two points which have been made out in regard to the behaviour of the meningococcus in cultures. One, that it will die more quickly at room temperature or in the ice chest than in the incubator, the other than even in the incubator it dies rapidly if the surface of the medium is allowed to dry. In fact the rapidity with which it dies when dried is remarkable and these facts point most strongly, first, to what has probably long been recognized, the slight infectivity of fomites, and second, the great danger which must result from healthy individuals in the neighbourhood of the patient becoming the unwilling hosts of the organism. As we will see this last does occur and probably accounts for the peculiar character of the epidemics.

The only other cultural character of importance (aside from the appearance of the colonies which I will not describe) is the action upon sugars. It causes fermentation (acid formation) in maltose and dextrose, but not in the other sugars. This character separates it from several forms, notably organisms of the catarrhalis group, which may occur in the nasopharynx.

Finally, a by no means unimportant morphological character, is the rapidity with which degenerative forms occur in the cultures. These begin to appear in a very few hours and are more marked the older

the culture. Flexner has pointed out that this is due to autolytic changes occurring in the organism.

For ordinary laboratory animals the meningococcus is very slightly pathogenic. For small animals like mice or guinea pigs relatively large doses must be injected intraperitoneally to cause death. In rabbits and guinea pigs subdural or intraspinal injections have given negative results, unless massive doses were used.

In regard to apes, the evidence until recently was contradictory, but last year Flexner succeeded (by inoculation of apes in the spinal canal of the lumbar region) in producing the typical disease with what is of great interest definite infection of the nasopharynx. In Flexner's animals the infection spread up the cord to the medulla, about the base of the brain and along the olfactory nerves to the nasal mucosa. The pathological changes in the meninges and brain of these animals was in every detail comparable to the lesions found in man.

The pathological anatomy may be briefly referred to. In fully developed cases, the exudate is mainly over the vertex of the brain, especially in the arachnoid and its spaces. The Sylvian fissure is rarely invaded. In rapidly fatal cases the amount of exudate may be very small, but, according to Westenhoeffer, it can always be found about the chiasma and hypophysis. Miliary hæmorrhages and abscesses are usually found in the brain substance, so that the disease is typically an encephalo-meningitis. The other organs of the body may show nothing more than the cloudy swelling due to the toxæmia. Of very great importance, however, is the observation of Westenhoeffer, made during the Silesian epidemic and confirmed by others, that there is always present in the pharynx and nasopharynx definite evidences of infection. The mucosa is covered with a slimy exudate which, on removal, shows the markedly inflamed tissue beneath. The pharyngeal tonsils are swollen and inflamed and the neighbouring lymphatic glands frequently also show involvement. From these areas the organism has been isolated. Two cases are reported also in Kutscher's article in Kolli und Wasserman (Ergängungsband), in which previous to the appearance of the meningeal symptoms the meningococcus was isolated from the exudate of a tonsillar angina.

These observations, taken with Westenhoeffer's statement that in fulminant cases in which slight or no evidence of meningitis was obtained at autopsy, it was always found about the chiasma and hypophysis, seems to me to point very conclusively to the path of infection.

Westenhoeffer's studies seemed to show that it is the posterior nasopharynx and pharyngeal regions which formed the point of entrance

and not the cribriform plate as had previously been suggested. In 30 autopsies he only found infection of the ethmoid once.

The involvement of the pharyngeal lymphatic tissue would naturally tend to point to the lymphatic path as the method of spread to the meninges. Careful studies of the microscopic sections failed, however, to demonstrate this, and Westenhoeffer has finally come to the conclusion that the invasion was hæmatogenic. He cites in support of this three fulminant cases dying within twenty-four hours, in all of which he found minute inflammatory foci in the heart muscle. However, whether the infection reaches the brain by the lymph channel or the blood-vessels may, perhaps, be very well left for further study, especially when we remember that this very point is still unsettled in the case of several other infections which we have had much better opportunity of studying than epidemic meningitis.

The most important fact is the apparently primary involvement of the nasopharynx. This fact has naturally turned attention to the condition of the nasopharynx in healthy persons who have been in contact with cases, and a large number of positive finds of the meningococcus are recorded in the literature.

Von Lingelsheim found it 24 times in 365 healthy persons in contact with patients.

Osterman under most favourable conditions (the material was taken by himself and cultures made immediately) found it 17 times in 24 persons in contact with cases. Some of these had a slight pharyngitis and in these the organism was present in almost pure culture. On the other hand he was unable to find it in a large number of persons who had not been in contact with cases. Kutscher in addition found it in a few cases in persons who had not been in contact. Goodwin and Von Sholly found the organism in 5 out of 45 persons who, within two weeks, had been in contact with cases. In the one which had been in contact with a case 14 days previously 30 per cent. of the colonies in the plates were meningococci. All these recent studies have been carefully controlled by cultures.

These facts seem to clear up very much the epidemiology of the disease. The organism is a strict human parasite; its very slight vitality in culture media renders it most unlikely that it spreads in any other way than from man to man.

The presence of the organism in the nasopharynx of non-meningeal cases, either with or without pharyngitis, explains many of the peculiar features of the epidemics, especially the gradual development of it, its long persistence in houses and localities and its tendency to flare up

again when apparently over. It explains also the sporadic cases and the small local epidemics, since it is quite possible that certain healthy individuals are bearers of the cocci meningococcus carriers as we have diphtheria carriers or typhoid carriers, and when favourable soil is met the disease breaks out.

All these facts point the way to prophylactic measures which may, when properly carried out, stamp out an epidemic before it reaches the enormous proportion which it obtained in New York and Silesia. At the same time there is the fact, that the disease is one of crowded tenements and unhealthy surroundings, and, as long as such are found in great cities, or amongst an ignorant peasantry, it will need all the ability of the sanitary authorities to prevent its spread. Bacteriologists however, have pointed the way here, as in the case of diphtheria, how the thing may be done. That is, the isolation, not only of those who are suffering from the disease, but of those also who are infected.

THE TREATMENT OF CEREBRO-SPINAL MENINGITIS.

BY

A. D. Blackader, B.A., M.D.,

Professor of Therapeutics, McGill University; Physician to the Montreal General Hospital.

From a study of the life history of the *diplococcus intracellularis* and from experimental inoculation of animals, especially, of monkeys, for much of which we are indebted to Dr. Simon Flexner of the Rockefeller Institute, New York, we learn that in the treatment of cerebro-spinal meningitis, we have to deal with an infection by an organism of very variable virulence, which, although readily antagonized and destroyed by the other tissues of the body, finds in the meninges of the cerebrum and spinal cord a favourable culture ground. In these tissues it develops extremely rapidly. From experiments in the monkey we learn that twelve hours from the time of inoculation an infection develops extending throughout the meninges of both brain and cerebrum, and giving rise to a most disastrous inflammatory reaction which may penetrate deeply into the tissues of the brain and block the various foramina of communication.

Although it appears to develop so very rapidly, the life history of the diplococcus in the tissues would appear to be a brief one. Against it the normal sera of the body possess distinct bactericidal powers. In the monkey experiments show that the actively bactericidal cells and secretions of the canal are capable of destroying in a few hours pro-

digious numbers of the diplococcus; and in this action they are greatly assisted by an enzyme developed by the coccus itself. Unfortunately, in the case of this infection the disastrous effects which follow it are not due to an intracellular toxin evolved during life, but to an endotoxin liberated after the death and disintegration of the cell body. Once, therefore, that a considerable development of the coccus has taken place, measures to prevent its further multiplication will not check the destructive effect of the endotoxins liberated from the dead disintegrating cells. Having to deal with such conditions the hope of the therapeutist must lie:

1. In prophylaxis.

2. In prompt measures at the very outset to check the development of the organism.

3. In placing the system under the best possible conditions to withstand the poisonous endotoxins liberated and to immunize their action.

As regards prophylaxis careful investigation during the recent epidemics, both in this country and in Europe, have emphasized the belief that under favourable circumstances the disease may be spread through immediate or mediate contact with the sick. The organism, undoubtedly, frequently exists in the nasal and pharyngeal secretions of the sick, and may exceptionally be found in the same secretions of those who have been in contact with them. It appears to be easily destroyed in these passages; the use of a disinfectant lotion is therefore indicated. The fact that it can be so communicated, however, shows the necessity for a careful maintenance of the best hygienic conditions in the treatment of those infected, and possibly for their isolation.

Up to the present all the therapeutic measures which have been tried to stay the course of the infection have proved of little avail. If we review the writings of the past decade, we find that with an increase of our knowledge of the conditions actually present, pessimism as to our therapeutic powers has become more pronounced, and treatment has become more expectant and symptomatic.

Since the publication, however, by Dr. Flexner of his report on experimental infection in monkeys, the hopes of the profession have been raised with the expectation that an efficient antitoxin may yet be discovered which may check at the outset the development of the infection, and thus prevent the disastrous after effects.

This hope is founded on the ascertained fact that the normal serum of blood possesses distinct bactericidal powers which can be increased considerably by development. Experiments with rabbits, goats, guinea-pigs, horses and, finally, monkeys, show that sera possessing consider-

ably increased bactericidal powers can be developed by prolonged immunization.

After detailing his careful experimental work, Flexner writes as follows: "By the employment of an homologous anti-diplococcus serum several monkeys were saved after a fatal dose of culture had been injected experimentally, but the results obtained were not sufficiently constant or striking to make this mode of treatment of serum cases very hopeful. Possibly, however, more active sera may yet be prepared with more effectual means for immunization: and it is probable that the bactericidal action of a serum may be favoured by the slower and more measured progression of the disease in man compared with the extremely rapid course and profound toxic symptoms which occur after inoculation in animals." Any anti-serum to be effectual must be employed at the very outset; and it must be borne in mind that increased power in a serum to destroy the diplococcus, is not necessarily associated with an increased power to resist the toxic effects of the intracellular poison liberated by the death and disintegration of cocci already developed.

It is interesting also in this connexion to note that while normal blood serum in laboratory experiments appears to have a very decided bactericidal power, and the exudate called out by inflammation has a still more definite action in this way, in many cases of infection in man this bactericidal action appears to be quite exhausted in the fluid obtained by lumbar puncture, as the number of diplococci in this fluid have been shown to increase on incubation outside the body. The possibility, therefore, is urged by Dr. Flexner, that the introduction of fresh normal serum into the canal may, in some cases, have a distinctly beneficial action by bringing quickly into contact with the diplococci a fluid with definite although mild destructive powers: a fluid also which, as shown by experiments, reduces very appreciably the toxic effects of definite doses.

In the absence, therefore, of any available immune serum, Dr. Flexner recommends that a small amount of normal human serum be injected into the canal after the withdrawal by lumbar puncture of as much of the infected fluid as can be obtained by drainage.

The great difficulty in the employment of any anti-serum for cerebro-spinal meningitis in man is the question of how promptly it can be employed to exert its action and check the development of the organism. Moreover, as all indications point to the pathological effects being due to endotoxins, it is very uncertain how far a sufficient quantity of antibody can be produced to neutralize an amount of endotoxin that will

distinctly lessen the disastrous action on the centres of life. On this aspect of the question Dr. Flexner is decidedly non-committtal and writes: "I am far from having any conviction that cerebro-spinal meningitis in man can be favourably influenced by injections of immune sera into the spinal canal or elsewhere in the body."

Dr. Von Eberts writes me that according to Sir Almroth Wright vaccine therapy has a distinct value in this affection. Observations carried out on the serum of patients suffering from the affection, show as a rule opsonic indices in the neighbourhood of normal. Bacterial inoculation leads in many cases to an induced phagocytic power yielding indices as high as 5. On the other hand, indices taken of the cerebro-spinal fluid from patients show invariably indices far below normal, and this fluid is found to be very lacking in bactericidal power and must be regarded as a stale deopsonized fluid.

This at once suggests the practice and explains the recognized value of frequent lumbar puncture, a procedure in which the stale fluid is withdrawn and replaced naturally by fresh serum. Lumbar puncture must be therefore considered in the light of an auto-inoculation.

Sir Almroth Wright asserts that by his bacterial inoculation the opsonic powers of the serum are heightened and, therefore, when it is mechanically induced to take the place of fluid withdrawn from the spinal canal, it must necessarily exert a greater lytic or bactericidal influence upon the active organisms at the focus of infection.

The weakness of this procedure, however, lies, in my opinion, in the fact that its action is slow and that even if the diplococci are destroyed by the opsonic fluid, the endotoxin still exerts its deleterious influence on the nervous tissues.

With reference to the general treatment of a case of meningitis, I may be permitted to very briefly remind you that rest to the irritated nerve centres is of the greatest importance. This fact was emphasized in one of Flexner's experiments in which a monkey that had struggled a great deal in the attempt to perform lumbar puncture was found after death to show a very unusual amount of congestion of the cerebral and spinal tissues which Dr. Flexner could only attribute to the over-exertion produced by the struggling. Clinically it has also been noted that in children in whom deafness occurs early, the disease generally runs a milder course. The greatest care must, therefore, be taken to secure absolute quiet and freedom from exciting noises for the patient. If this is impossible, the ears should be stuffed with cotton. Light should also be excluded from the eyes by means of a bandage, and all unnecessary disturbance of limbs should be avoided. Any symp-

toms inducing restlessness call imperatively for relief. Herein lies the value of the opium treatment so highly lauded by many of the older physicians: it secures rest and lessens irritation. Convulsions demand chloroform and morphine.

When the extremities or surface of the body are unduly cool, heat may be employed. It is in such cases that Aufrecht's warm baths are of special service, but the patient must be gently lifted in and out of the bath on blankets with as little disturbance as possible. Jerwin says, "that the indications for their use are subnormal temperature, small weak pulse, threatened collapse, headache and nervous irritability." The baths should have a temperature of from 100 to 104 degrees, and the patient should remain in them from 10 to 20 minutes. Their effect, in my experience, is distinctly beneficial, but careful watching of the effect produced by them is necessary. High temperature, on the other hand, calls for the application of ice bags to head and spine.

Any symptoms of pressure on the medullary or other cerebral centres such as headache, slow pulse, stupor, or vomiting urgently demand lumbar puncture, and this in many instances will be found to afford prompt relief. I have already referred to the therapeutic value attributed to this procedure. With careful aseptic precautions lumbar puncture is harmless and comparatively easy.

Adequate nourishment is imperative. A tactful nurse can accomplish much, but when stupor sets in forced feeding must be attempted by passing a catheter through the nose into the œsophagus.

Lastly, good ventilation must be maintained at all times in the sick chamber. The temperature of the room should not fall below 65 degrees F. It is noteworthy that with the onset of warm weather an epidemic generally ceases.

Throughout our treatment, while we dare not be optimistic, we have no right to be pessimistic. Cases which, for the time, appear hopeless may yet make a complete recovery. Although sometimes a mild onset may be followed by severe symptoms, a stormy invasion may not infrequently be succeeded by a rapid decline and uneventful convalescence. Chapin mentions a case in which the thermometer reached a temperature of 108.6 and yet made a complete recovery.

Appended are the statistics of the cases treated in the two large hospitals of this city during the past ten years, for the compilation of which I am indebted to Dr. Landry of the Royal Victoria, and Dr. Eggert of the Montreal General Hospitals.

There were admitted into the Montreal General Hospital 58 cases of cerebro-spinal fever, of which 37 terminated fatally; a mortality of 63 per cent.

There were admitted into the Royal Victoria Hospital 16 cases, of which 10 terminated fatally; also a mortality of 63 per cent.

Lumbar puncture was performed as a therapeutic measure in 30 cases—of these 17 died; a mortality of 56 per cent.

Age Mortality.

1 to 10	years.....	25	cases.	with	14	deaths,	equals	56	p.c.	mortality.
10 to 20	"	19	"		8	"	"	42	"	"
20 to 30	"	19	"		16	"	"	82	"	"
30 to 40	"	5	"		5	"	"	100	"	"
40 to 50	"	3	"		2	"	"	66	"	"
50 to 60	"	3	"		3	"	"	100	"	"

The lowest mortality was during the second decade of life. The greatest was during the first decade. More than 80 per cent of the cases occurred during the first three decades.

PRIMARY MELANOSIS OF THE PALATE: NASO-BUCCAL FISTULA OF RECENT SARCOMATOUS ORIGIN.

BY

J. N. Roy, M.D.,

Physician to the Hôtel-Dieu, of Montreal.

It is well-known that there exist strange freaks of nature which till now the most profound observers fail to explain. In medicine, numerous examples could be cited: among others, primary melanosis of the palate is, I think, worthy of note. The histologist could easily tell us what melanosis consists of, but he would find it very difficult indeed to explain how and why that melanosis became primarily localized in the palate. Normally, the mucous membrane of the human palate is of a pale rose colour, and whenever pigment appears it is symptomatic of a pathological process.

A glance at comparative anatomy shows that, in general, the palate of animals is whitish in colour, and the mucous membrane is undulated with numerous transverse furrows. However, the horse, the cow, the dog, the deer and the fox may normally have a dark palate. The maki, on the other hand, has always a pigmented palate.

The caprices of nature must puzzle the biologist and make him wonder what could be the physiological explanation of how a white palate and a dark palate could exist in the same race of animals.

If the physiology of animals is so capricious, it is not at all the same thing with human physiology. With man melanosis of the palate has

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always a serious signification; either it is a precursory symptom of future disease, or it is a complication of an already existing tumour, or else it begins with the new-growth.

Medical literature is very poor in notes on this subject; I have been able to find only two other similar cases reported; therefore, I have thought it might be of interest to record the present case, and I would draw special attention to the beginning of this condition which dates back twenty years, and to the naso-buccal fistula of recent sarcomatous origin.

In September, 1906, J. D., a blacksmith, 43 years of age, consulted me at the Hôtel-Dieu. He related that in 1896, he remarked on the median raphé of the vault of the palate a small round spot of a diameter of about three millimeters. This spot was not elevated and caused no trouble. A year before he had slightly injured his palate with the stem of a clay pipe. The hæmorrhage was trifling and the wound healed quickly, apparently leaving no traces. During the following twelve years, this spot increased in diameter to about six millimeters without, however, becoming prominent. The only symptom he noticed was slight roughness to the tongue on pressure. He consulted a doctor who prescribed gargles and applications of tincture of iodine. During the first twelve years the melanosis was painless, but after the applications of iodine pain appeared. Pigmentation extended gradually to the surrounding parts, and the mucous membrane became granular and irregular. Hard, dark masses with a hæmorrhagic tendency began to form. Four years later, all the space between the dental arch of the superior maxilla was filled with melanotic granulations. The feeling of local irritation succeeded the pain caused by the applications of iodine, which were discontinued for that reason. The irritation disappeared temporarily when the patient rubbed the mass with his tongue. The last four years, the lesion became deeper. Till then the whole palate was in a state of melanosis. Then slowly there came a depression more marked on the left side. We cannot trace at present any swelling antecedent to this depression. The palate then became rougher and furrows separated small masses which apparently were increasing in size. Early in September last, the patient, while attempting to suck, perceived the existence of a naso-buccal fistula. Neither hæmorrhage nor suppuration were noted.

On examination it was remarked that the melanosis invaded the whole hard palate. Granulations of a brown and black colour and of various sizes were scattered around. They were hard and showed no tendency to hæmorrhage. The left side was greatly depressed and, at

the union of the anterior two-thirds with the posterior third, the probe passed into the left nasal cavity. Pain was felt only if irritating food was taken, or if cold air passed quickly through the fistula. There was a slight discharge and slight necrotic odour. A mass of granulation tissue at the orifice of the fistula prevented liquids from entering the nasal cavity.

The voice was nasal. Taste was dulled; no dysphagia, but loss of pharyngeal reflexes. Gums and cheeks showed no melanosis.

The patient has always been a great smoker, he used to chew tobacco and took no care of his teeth, which are quite discoloured. The upper teeth are healthy, except the first left molar, which shows caries to the third degree. The third right molar has been extracted. The second left lower molar has also been extracted. The other teeth are quite healthy.

An anterior rhinoscopic examination shows a hypertrophic rhinitis on the left side. The septum is depressible and œdomatous, and a small cartilaginous spur prevents the perforation being seen. On the right side, the septum is in the same condition and there is hypertrophy of the inferior turbinals.

No history of epistaxis or nasal discharge.

Posterior rhinoscopy shows hypertrophy of the posterior ends of the lower and middle turbinals. The posterior end of the septum is tripled in diameter. A whitish infiltration appears to come from the middle part of the septum and gradually grows more marked as it extends backwards.

At this rhinological examination I have not found any melanosis.

The pharynx is slightly congested, the larynx normal.

Diaphanoscopic examination shows the right antrum to be transparent and the pupil luminous. On the left side the cheek is darkened and the pupil obscured. By means of Mahu's method, I examine the capacity of the left antrum, and find it holds two cubic centimeters of water which returns from the left nostril quite clear.

Cervical lymphatic glands on left side appear slightly hypertrophied.

A close examination of the eyes shows they are normal. The iris is of a clear grey colour without any abnormal pigmentation. Refraction is: Right eye 90° + 0.25 V=1; left eye, 90° + 0.25 V=1.

The patient has always resided in the country and has enjoyed excellent health. The only sicknesses he has had were pneumonia in 1888, and mild cystitis in 1894.

There is no history of tuberculosis or lues. He has made use of alcohol without abuse.

Primary Melanosis of the Palate.

Married for eleven years, he is the father of seven children. The two eldest died of convulsions in infancy. The others are in good health.

All his ancestors lived to a good old age.

There is no cancerous history.

His brothers and sisters are in excellent health.

On inspection of the skin, there are no pigmented spots. The skin is normal except for a slight subicteric shade.

The examination of the different organs shows nothing abnormal.

Urine analysis shows a density of 1022. There is no sugar, albumen, but a trace of urobilin.

Examination of the blood is of no special interest. There is nothing abnormal about its composition, and the number of red and white corpuscles varies but slightly from the normal. The presence of pigment in the blood was negative to a most minute examination.

Till now, the cause of this palatine perforation remained obscure.

Although it was impossible to trace lues in this patient, I prescribed large doses of mercury and iodide of potassium awaiting the microscopic report on a small granulation removed for examination. Menthol and boric acid salve, and a mouthwash of chlorate of potassium completed the medical treatment. Hygienic treatment consisted in forbidding all irritating food and ordering cleansing of the teeth.

In this case we did not think it necessary to search for the spirochæte pallida of Schaudinn, as it is generally admitted that this microorganism is found only in primary and secondary lesions. As to the bacillus of rectilinear shape its presence is questioned in tertiary lesions.

My friends, Dr. St. Jacques, professor at Laval University, and Dr. Hingston, F.R.C.S. Ed., returned the following report upon the small piece removed:

"On microscopic examination, the section appeared to measure about "5 millimeters in diameter. The epithelial layer still remains, though "varying in thickness in some parts."

"The cells of the deeper layers are in general well divided from the "underlying parts; but in some places there appear to merge into the "submucous tissue.

"The submucous space is filled with cells of irregular shape, various "size and appearance. In some places they are very close to each other, "in others they are well separated. Some of the cells are round, "others very irregular. Mitosis not marked. The nuclei vary much "in size and shape. The intercellular spaces are filled with granular "substance, and here and there are seen free blood corpuscles. In one "place, there are mucous glands altered in shape but showing no signs

"of malignancy. Blood vessels are scarce, but blood is seen in spaces "without vessel-walls typical of sarcoma. The cells of this mass are "spread with no order whatever. Melanotic pigment is seen and is both "intra and extra-cellular."

"Diagnosis: Melanotic sarcoma resembling melanotic endothelioma."

Seen again in November last, the patient said he was in the same state. The lesion appeared to have become deeper, especially anteriorly. The vault of the palate was becoming denuded, and in places small necrotic masses of bone were seen. There remained very little sensitiveness on the left side. He was very anxious to hear the result of the microscopic examination, and, knowing that this condition was serious, he told me he would not consent to operative interference. He was given the necessary explanations, and the gravity of his state made clear. Operative measures were discussed together with the necessary mutilation, possible complications and probable recurrence. Having again refused the operation, he was given hygienic advice. A Resorcin gargle and Fowler's solution were prescribed.

He returned to the country where he now lives and came to see me in February and April. As yet there is no pain, but the lesion is rapidly increasing. The vault of the palate is becoming more denuded, and small sequestra become detached, thus increasing the size of the fistula. This atypical sarcoma so long indolent appears to be making up for lost time, and makes us foresee a fatal ending in the near future.

This case appears to be of interest from several points of view. First, should we put the beginning of this melanosis back twenty-one years, and look upon it as consecutive to injury received at that period? We know that all cutaneous regions strongly or chronically irritated can become pigmented whether the irritation be physical, mechanical or pathological. Could that law be applied to our case? It would be difficult to admit it, as the tissues of the human palate have not the property of producing melanotic pigment.

Should we call it a parasitic theory or attribute the cause of this melanosis to the melanin of the blood? Any hypothesis we could lay down would be most problematical for, we must admit, our knowledge on the etiology of this condition is extremely vague.

This neoplasm surely did not begin with the melanosis, as it is generally admitted that melanotic sarcoma has a very rapid growth. By the clinical history, we see that the pigmentation dates back twenty years, that the evolution was very slow, and that the symptoms were slight. Sixteen years after it had appeared, the mark was only six millimeters in diameter, and was on the level with mucous membrane

of the palate. Perhaps the irritating action of the iodine caused the increase of the growth of the tumour in the breadth and depth. Perhaps it was mere coincidence. The naso-buccal fistula appeared September last, and since then has rapidly progressed. From these facts, I am inclined to think that this primary melanosis was benign in nature, and that in late years a neoplasm appeared in this location and became infiltrated with pigment and gave to this lesion an invading destructive and openly malignant growth.

Dalbet affirms that all melanotic tumours arising elsewhere than in the eye and the skin are sacomatous. The microscopic examination of tissue removed a year or two ago would have been of great interest. Perhaps at that moment we would have found an endothelial tumour. Pathologists do not agree on the histological transformation of endothelioma and sarcoma. Monod and Arthand hold that sarcoma is an aggravated form of endothelioma. At present our tumour is certainly sarcomatous, although in places an arrangement of cells resembling endothelioma are found.

What is the prognosis? We know that of sarcoma the melanotic variety is one of the most serious. Moreover, when the growth invades the palatine vault and perforates it, the evolution is rapid and invariably has a fatal termination.

If operative measures had been attempted recurrence probably would have occurred on account of the growth of the lesions towards the nose and left antrum. We would also have had the risk of post-operative complications and considerable disfiguration.

In conclusion, I should like to remark how unusual this case is, presenting a primary melanosis of the palate without co-existing lesions of the eye or skin, a slow evolution of twenty years, and a recent rapid sarcomatous growth.

The next annual meeting of the British Columbia Interior Medical Association will be held in Rossland, in July. The officers of this society are:—President, Dr. E. C. Arthur, Nelson; Vice-President, Dr. Wm. A. Sutherland, Revelstoke; Secretary-Treasurer, Dr. S. Petersky, Sandon. Committee—Dr. J. H. King, Cranbrook; Dr. F. P. Patterson, Trail; Dr. S. Bonnell, Fernie; Dr. J. S. Burriss, Kamloops; Dr. B. deF. Boyce, Kelowna; Dr. Jas. E. Spankie, Greenwood.

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THE SUPPLY OF PURE MILK.

We know, personally, that there is a modern milkman in Montreal, whose name we shall be glad to give on application. He provides milk which is taken from the cows with much precaution, and we hope to encourage him and those who are willing to work according to like methods by spreading abroad his name and fame. By personal inspection, we have found at his stables cows groomed and cleaned like carriage horses, milked by an intelligent man, gowned in clean linen, with clean hands, who milks into a small-mouthed pail through a cloth strainer; the milk is then put at once into bottles, standing in ice, and is thereby cooled, and is kept at a low temperature and is delivered to patrons not more than twelve or fourteen hours old. The bottles are properly sterilized, and the milk is thus delivered in a proper state to the consumer. This milk costs 15 cents per quart, but it is

good, and there are many consumers in Montreal who are willing to pay this price for an article that is known to be good. The price is, as yet, too high for the average consumer, but the movement is in the right direction, and with a larger *clientèle*, the producer to whom we refer will be able to enlarge the supply which is put forth under these favourable circumstances.

We have had occasion to refer to this matter before, and to say that the only hope in a universally good milk supply is in the exclusion—yes, the crushing out—of the small, irresponsible dealer, and the encouraging of the dealer on a large scale who will take pains that the dairy puts out first class milk. In winter, bacteria cannot multiply in very great numbers in even a moderately bad milk, but in summer the start is everything; a milk, dirtily milked, and not properly cooled, kept for twelve or twenty-four hours will present at the end of that time an appalling number of bacteria, and will have an appallingly bad effect upon the babies to whom it is fed; therefore, it is necessary to demand clean cattle, clean stables, clean milkers, quickly-cooled milk, and sterilized cans, and any dealer who fails in any one particular ought to be forced out of the business. Here is no place for philanthropy: it is no question of "live and let live"; the dealer who cannot conform to these conditions must be forced out of business, because the physical welfare of the community is at stake. The only way in which this can be brought about is by the encouragement of the dealer in good milk to such an extent that he will be enabled, by the large amount of his production, to meet in price, and to beat in quality the petty retailer who supplies grocery stores, and small customers. It is true that it is the duty of our inspectors to prosecute any dealer who puts bad milk on the market; such a duty should be carried out without any idea of clemency, so that dealers incapable of supplying clean milk should be prevented from supplying milk at all to the people; this cannot be efficiently done for a long time; but in the meantime, the moneyed classes can obtain, though at a high price, a good quality of milk, and can thus compel the suppliers of second-rate milk to improve their methods; once this is done, we feel sure that the purveyors of milk are not essentially grasping men, but that they will be satisfied with a reasonable profit, and will extend their business, so that the average quality of their milk will be so much bettered that the blessings of a pure milk supply will be extended to thousands instead of to hundreds. If a dealer, who acts as the dealer of whom we speak, finds a largely increased market for his milk, we can reasonably expect that he can thereby increase the number of cattle that he keeps thus care-

fully, and can, in a corresponding degree, increase the output of first class milk, and, at the same time, the number of his customers.

This may appear a kind of left-handed way of going to work, but, in default of better, let us employ it; to the furtherance of that aim, we shall be glad to tell anyone who asks, of this dairy; we do not mention the name of the dairyman in print, lest there should be others who are doing as well, of whom we do not know, but we hope, by personal inspection, to be able, before long, to assure our readers who are first class dairymen, and, by omission, who are not.

A DENOMINATIONAL MEDICAL SCHOOL.

The daily press (*Toronto Telegram*, October 18, 1907) makes the statement that the report of the Board of Governors and the Senate of McMaster University, submitted to the Baptist Convention at Woodstock, Ont., recommended the project of establishing a medical faculty in that university. We do not think this wise. If McMaster University can equip and train better physicians than the strong, well-equipped University of Toronto there is reasonableness in their idea. We know they can not, because the University of Toronto has a strong hold on the clinical facilities of the city. If they propose to place the college in any other city, the possibility of excelling Toronto is at once impossible. It is true they may think of Montreal, but here the ground is already somewhat occupied. We feel sure they will not, and cannot train the medical students better than the non-sectarian university, and therefore they should not try a scheme so wasteful of money and energy. The report goes on to say that, "if each year we could bring under our influence a large number of students preparing for the medical profession, it evidently is our duty to undertake the obligations involved, provided this can be done without any possibility of such work becoming a charge on our present endowment." This appears to mean that McMaster University—not the Baptist denomination at large—will be glad to extend its boundaries, provided the bills are paid and no risk is incurred. Most colleges would be willing to take exactly the same ground on the same terms. Thus far it affects McMaster University; but as to a duty to the public and the country and as to how well that university is fitted to fulfil it, there is no word.

We have no animosity against the projectors of this particular scheme, but we feel strongly on the principle involved. The words "under our influence" and medical training should not be associated. A man may be a very good Baptist, but he is not necessarily one step farther towards being a good physician.

In this province we have a somewhat extended field for observation of sectarian education, even when that education is in the hands of a church that is financially very strong, and we are convinced that medical education should be entirely separated from clerical influence. The world has proved it, and those of the Baptist denomination, or any other denomination, who think otherwise, should re-examine the facts very carefully.

ADVANCE IN AUSTRALIA.

The Australian commission on proprietary medicines has made a report, the recommendations of which are thus summarized:

1. That the formulæ of all proprietary remedies shall be printed on the labels, the quantities of the ingredients as well as their names to be given.

2. That no advertisement or recommendation be permitted upon the package.

3. That all advertisements of proprietary remedies in any form whatever be prohibited.

4. That the transmission by post of any literature relating to proprietary remedies be prohibited.

5. That letters patent be granted as now for any approved and novel formulæ for the prevention, alleviation, or cure of human ailments. Provided that no patent be granted for any single drug or agent which is not compounded, and that every proprietary name which is applied to the patented combination be registered.

6. That the quality, nature, and properties of the composition shall be such as may, in the opinion of the Health Office, justify the claims of the inventor.

7. That in the cases of articles imported into Australia the same restrictions shall apply as in the country of origin.

8. That no anti-conceptional preparations of articles expressly for that purpose, be held for sale or sold.

9. That for the purpose of effective control a bureau of chemistry should be established with branches in the various ports of the Commonwealth.

The *New York Medical Journal*, August 14th, 1907, contains a paper by Sir James Grant, on "Electrolysis, and the Nervous System," the subject of which has been under his consideration since 1854 when a graduate at McGill University. Sir James states: "For many years I applied electricity in the ordinary way, frequently with beneficial re-

sults, without knowing exactly the why, or the wherefore. As the body is largely composed of water holding in solution salts of potash and soda, it becomes an excellent electrolyte. In no part of the human system are the irregularities of life more marked than in the alimentary canal, where the defences of the organism permit the ingress of bacterial toxins. In this tract the blood formation becomes interrupted. Under such circumstances a perfectly stable nervous system is a rarity. Here particularly electrolysis becomes an important factor, giving new activity by establishing beyond doubt an average neuro-psychic equilibrium." In the cases cited the writer affirms that new blood was actually added to the system, "by stimulating electrically and directly through the abdominal walls, the ganglia of the blood making centre, where the remarkable transformation of the various food products, is in operation." True, electricity as a factor for the treatment of disease, has been adopted for centuries, but we are safe in congratulating Sir James on its direct application to the blood making centre, with such remarkable results, as defined in the cases published in his paper.

Le Journal de Médicine et de Chirurgie appears in Vol. II, No. 16, under new circumstances. The original editorial board has been replaced by a new one whose object is: le groupement de unités médicales françaises du Dominion et des Etats-Unis." They confess to the high ambition that in time they will be entitled to style their publication *La Journal de Médicine et de Chirurgie de l'Amérique du Nord.* The administration of the journal is in charge of Dr. W. J. Dérome, Dr. F. Monod, and Dr. A. Marcil. The editorial board contains some of the best known names in Montreal. The first number under the new management appeared on September 28th. Apart from the announcement from which we have quoted the number contains nothing but a report of the last meeting of the Collège des Médicins et Chirurgiens de la Province de Québec. We think that something further is required to place "notre profession médicale française à la tête des professions libérales." The succeeding numbers are upon quite a different plan and contain many original articles, correspondence and reports. We note especially a most entertaining account by Dr. Adrien Loir upon the hygienic regulations of the Jewish law. Dr. Loir was formerly professor in the National School of Colonial Agriculture. For nine years he directed the Pasteur Institute in Tunis, and is now attached to Laval University.

Queen's Medical Quarterly, for October, published by the Medical Faculty of Queen's University, Kingston, deserves notice. It gives an admirable account of the work which is being done in Kingston with much matter of historical interest. It appears that the medical school had its origin in the fact that certain students of medicine, who had spent three sessions pursuing their studies in a city west of Kingston, were unable to obtain a degree in medicine unless they subscribed to certain religious tests which were obnoxious to them. This city "west of Kingston" is presumably Toronto, though we never before heard that great city assigned a geographical situation according to its relation to Kingston. So far as we know Toronto does not now exact religious tests, and Queen's Medical School must find another reason for existence than that which lies in theological protest. We agree unreservedly that the student "must study at the bedside of the sick," and that opportunity must be difficult of access in a city of 17,000 inhabitants.

Dr. R. W. Bell, inspector of the Provincial Board of Health, has gone to Oakville to make enquiries in regard to the outbreak of small-pox which occurred there. He reports that "the outbreak has been admirably handled, and is an example to many a much larger municipality. They have a series of isolation tents for patients on the lakeshore, with trained nurses and physicians in regular attendance. The houses from which patients have been taken have been disinfected and quarantined, and from twenty-five to thirty constables are constantly on duty, night and day, preserving the quarantine regulations."

A despatch to the Toronto *Globe*, dated Kingston, October 26th, informs us that "Dean Connell of Queen's Medical College has received applications for no less than six more house surgeons for hospitals in the States of Michigan and New York, and in Montreal. He has already placed the remainder of last spring's graduates and cannot send any more. There is a big demand for Queen's medical graduates by hospitals all over the continent."

The Ottawa *Citizen* of October 18th reports that "the number of typhoid cases in the city of Hull continues to increase instead of diminish and the situation is being regarded as serious. During the last few days numerous new cases have broken out with a rapidity which is causing alarm." The water supply is blamed for the out-

break, as the new in-take pipe which was to have been completed last spring is not yet ready.

The Toronto *World* announces that "Lady Meds." which appears from the context to mean female students of medicine have been "admitted to the privileges of the class society and have been duly installed by the gallant 'Varsity meds. as members in full standing."

Reviews and Notices of Books.

Diseases of the Genito-urinary Organs and the Kidney. By Robert Holmes Greene, A.M., M.D., Professor of Genito-urinary Surgery of Fordham University, Genito-urinary Surgeon to City and French Hospital, New York; and Harlow Brooks, M.D., Assistant Professor of Pathological Anatomy, University and Bellevue Hospital Medical School, etc. W. B. Saunders Company.

More space than usual in American books of this nature has been allotted to methods of examination—methodical examination of the patient, examination of the urine, endoscopy, cystoscopy and ureteral catheterization are all discussed. In addition, such subjects as the embryology and physiology of the kidney receives attention as well as the ordinarily treated anatomy, while the process of compensation of kidney lesions and the effect of kidney disease on blood pressure receive more than their usual modicum of space. For these innovations we have nothing but praise, nevertheless, we wish we could have had more of it. We are warned in the preface that it is impossible to make a book of this size complete, but we wish the authors had endeavoured to fill out these subjects as none can recognize better than themselves how lacking is American genito-urinary literature, as it appears in text-books, of a careful scientific basis of fact.

That part of the book which chiefly appeals to us is devoted to the kidney. Tubercular disease is stated to be frequently cured. Edebohl's operation of decortication is discussed and we are recommended not to use it. Hypernephromata are shortly set forth. Lavage of the kidney pelvis in pyelitis is said to be easily carried out, but no personal experience as to results comes to our aid. While granting the difficulties in the way of those who would untangle the snarl which the various prostalectomics have wound about themselves, yet some broad view seems lacking in the present instance. Young and Freyer are evidently purposely left unmentioned. Fuller and McGill, also among many others,

Bryson and Fenwick are those emulated. A mortality of 5 per cent. in selected cases is the authors' idea of the seriousness of this operation.

Cystoscopy and ureteral catheterization is better treated here than in any other American text-book which has come under our observation. The illustrations are clear, but at times are too evidently the result of the pencil rather than the reproduction of facts, nevertheless they are extremely useful. The chapter on deformities of the penis and circumcision is good. One curious mistake occurs in stating that the micrococcus catarrhalis, a common inhabitant of the urethra can be distinguished from the gonococcus in that it is not decolorized by Gram's.

On the whole we can thoroughly recommend the book. It is well written, well printed, well illustrated, and well bound. If we must pick out the greatest fault, it is that the authors have not brought us into closer contact with the facts of their experience which allow them to draw certain of their conclusions. R. P. C.

Clinical Anatomy. By Daniel N. Eisendrath, A.B., M.D., Adjunct Professor of Surgery in University of Illinois, Attending Surgeon Cook County Hospital, Chicago. 535 pages, and many illustrations. Cloth, $5.00. W. B. Saunders Company, Philadelphia. Second Edition, thoroughly revised.

The author affirms that the primary object of this book is to serve a better daily practical application of anatomy in the operating room and in the clinic, than can be obtained from ordinary descriptive anatomy, and whatever assistance is afforded us in this respect is commendable. The value of surface anatomy is beyond question, and in this volume special effort has been made in many original illustrations to elaborate this important feature of the physician's and surgeon's work. Indeed, there is unusual wealth of regional illustration, made on dark background rendering it specially clear for the study of viscera, vessels, and nerves, in their various relations. In such an arrangement the descriptions are necessarily condensed and education is attained by the objective predominating the descriptive. The paper is excellent and the type large and clear, making the volume a desirable one for all engaged in active practice. G. T. R.

Diagnosis of Diseases of Children. By LeGrand Kerr, M.D., Professor of Diseases of Children at the Brooklyn Post-graduate Medical School. 8vo., 542 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $5.00. Canadian Agents: J. A. Carveth & Co., Toronto.

This is a large book dealing only with the clinical diagnosis of children's diseases; etiology and pathology are not considered as fully

or as often as they might, even in a work of this kind. The arrangement of the matter is good, as is also the discussion of the significance of important symptoms. But the description of individual diseases, and groups of diseases, with their differential diagnosis, leave something to be desired. We notice this particularly in the sections on acute pulmonary diseases. The term empyema apparently does not occur in the book, and even as "purulent pleuritis" this important affection does not receive the consideration it deserves. We look in vain for any mention of von Jaksch's anæmia, Vincent's angina, Harrison's groove, the palpation of the pylorus, often such a striking sign, in congenital stenosis. In short, the work is not as scientific and thorough as one might desire in a book of its scope, size, and weight, and the index is not as full as it ought to be, nor are the illustrations always well chosen. There are excellent chapters on the laryngeal stenoses and organic nervous affections. In spite of defects the book may generally be relied upon to give practical assistance to the perplexed practitioner, especially as regards the disorders of infancy.

THE ROENTGEN RAYS IN MEDICAL WORK. By DAVID WALSH, M.D., Senior Physician to the Western Hospital, London, and H. LEWIS JONES, M.D., F.R.C.P., Medical Officer in charge of the Electrical Department, St. Bartholomew's Hospital. London: Baillière, Tindall and Cox. Canadian Agents: J. A. Carveth & Co., Toronto. Fourth Edition. 427 pages. Price, $4.50.

The new edition of this excellent manual brings up to date the consideration of the Roentgen rays in their all-important relations to medical science and practice. Almost a third of the book is taken up with a thorough description and cuts of the various forms of apparatus. The practical application of the rays, not only in surgery but also to internal medicine, comes in for full treatment, especially in relation to thoracic conditions. The chapter on therapeutics, while conservative, is not so satisfactory. The illustrations are numerous, and are admirably clear.

Medical News.

The quarterly meeting of the Cape Breton Medical Society was held in North Sydney on October 7th. There was an attendance of twenty-two members, and Dr. R. C. McLeod presided. Papers were read by Drs. Kendall, Eagan, and MacLean, and a dinner was given in the evening to the visiting physicians.

The Ontario College of Physicians and Surgeons has made arrangements for the purchase of a property in Toronto, on University Avenue, near the site of the new City Hospital. The intention is next year to start work on a fine new building with an examination hall to accommodate 300 candidates.

Dr. Robert Barnes, formerly of London, Ontario, has been appointed travelling inspector for the Dominion Government under the Meat Inspection Act.

The city of Halifax has made provisions for the medical inspection of its schools. Drs. Cunningham and Woodbury were appointed inspectors.

Plans are being discussed for the building of a general hospital in Calgary to cost a hundred and forty thousand dollars.

Dr. Bettridge died at Strathroy on October 15th. He was a graduate of Toronto University and of Trinity College. Dr. Bettridge was born in England, in 1828.

Dr. Humphrey Buchan, assistant medical superintendent to the London Insane Asylum, died on October 18th.

Dr. J. A. Stevenson of Ridgetown, Ontario, died on September 29th, 1907.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Lt.-Col P. J. Freyer, M.A., M.D., M.Ch., Surgeon to King Edward VII's Hospital, and to St. Peter's Hospital, London. "Prostatektomie wegen Hypertrophia prostatae. Statistik über 432 eigene operierte Fälle. (Total Enucleation of the Prostate for Radical cure of Enlargement of that Organ; with Statistics of 432 cases of this operation)." *Zeitschrift für Urologie, Bd. I, Hft.* 10.

This article which, outside of the 107 additional cases, contains little that has not been repeatedly stated in English by its author, nevertheless,

presents Freyer's contention concisely and clearly. The author states that to understand his views it is necessary to remember that the prostate is not a single organ, but in reality a double organ. In many animals it remains separated throughout life; in man it becomes fused about the 4th fœtal mouth. Each fœtal organ thus at a later date becomes a lateral lobe, and each is surrounded by a dense capsula propria which is limited to that lobe and dipping down along the commissure effectively separates the two lobes. These lobes thus lie quite outside the urethra and ejaculatory ducts. The middle lobe is to be regarded as an outgrowth from one or other lateral lobe. In addition to the capsula propria the recto-vesical fold of the pelvic fascia supplies an additional capsule which surrounds the whole organ and in this capsule lies the prostatic plexus of veins. Surgeons and text-books confuse these two capsules; in Freyer's operation only the first capsule is removed, the second remains and serves as a protection to the urethra, ejaculatory ducts, and against infiltration of urine. Nearly all hypertrophies are to be regarded as adenomata.

The operative procedure is as follows: After a suprapubic cystotomy, with one finger in the bladder and the other in the rectum, the surgeon locates the most prominent part of the prostate and scratches through the mucosa. Then little by little works his finger into the space between the capsules and loosens the lobe. It is possible to remove each lobe separately, thus leaving the urethra practically intact, but, as a rule, he removes the whole organ in one mass and cuts through the prostatic urethra just posterior to the verumontanum, thus preserving the mouths of the ejaculatory ducts which we are assured are generally left intact.

Lavage for hæmorrhage: A large drainage tube, large absorbent dressings changed every four or six hours, and irrigation of the bladder twice daily for ten days are some of the more important points in after treatment.

Freyer performed his first operation in December, 1900, made his first publication in March, 1901, and since then has operated upon 432 cases with a mortality of 29, or 7 per cent., most of which were due to causes apart from the operation. The largest prostate was 14½ oz., the smallest ½ oz.

The results have been uniformly satisfactory. There has been no case of retention, of stricture or of fistula subsequent to this operation in his hands, which is an extraordinary statement.

R. P. C.

George E. Brewer, M.D. "The Etiology of certain cases of Left-sided Intra-abdominal Suppuration—Acute Diverticulitis." *Amer. Jour. Med. Sciences,* October, 1907.

Intestinal diverticula are divided into two classes, the congenital and the acquired. The former, represented by Meckel's diverticulum, is single; has a rectangular implantation into the free border of the terminal portion of the ileum, generally in the neighbourhood of the ileo-cæcal valve; it is made up of all the coats of the intestine; it is generally more than 2 cm. in length; and has a terminal filament which may be free or attached to the abdominal wall, the mesentery, or another part of the intestine. The acquired diverticula are, as a rule, multiple; small, thin-walled, round or ovoid in shape, they may be found in any part of the intestinal canal, but are more frequent in the left colon and rectum, and are in reality hernial protrusions of the mucous membrane through the separated fibres of the muscular coat; and are situated most frequently along the mesenteric border of the bowel. Congenital diverticula have been known since the early part of the eighteenth century to be the not infrequent cause of strangulation of the bowel, and, during the last fifty years to be the occasional cause of peritonitis from perforation. During the past half century pathologists have reported specimens showing inflammation, necrosis, perforation, with or without fœcal concretions, of these false diverticula of the left colon, and have clearly demonstrated the relationship between these lesions and a general or localized peritonitis. These communications, however, have, for the most part, been buried in the transactions of pathological societies or have appeared in periodicals not largely read by clinicians. These circumstances and the rarity of the condition will easily account for the fact that the disease is not described in our clinical text-books, nor generally recognized by the profession. The disease occurs most frequently in middle adult life. The onset and cause of the attack resemble appendicitis so closely that the writer seriously considered the possibility of transposition of the viscera, the symptoms being limtied to the left lower quadrant. Perforation may give us a localized suppuration or a diffuse peritonitis, and the treatment is that of incision, drainage, and closure of the perforation when possible. Six cases are reported, in four of which the connexion between a perforated false diverticulum and the condition at operation, though not demonstrated, was highly probable, while in the last two such connexion was positively shown to exist. Over-distension of the rectum and sigmoids resulting from constipation would appear to be a factor in the formation of the false diverticula, while the usual finding of a fœcal concretion would suggest the prob-

ability of its being the exciting cause of the perforation. The writer believes this disease to be of more frequent occurrence than the literature upon it would suggest, and regards it as a possibility the profession must consider when examining an intra-abdominal condition.

W.L. B.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

VARIOUS AUTHORS. "Exophthalmic Goitre." *Jour. of the Am. Med. Assoc.*, Vol. 49, Nos. 14 and 15.

At the joint session of the various sections of the American Medical Association, held at Atlantic City, June, 1907, five very instructive papers on the physiology, pathology, diagnosis, surgical and medical treatment of Exophthalmic Goitre were read. These papers have recently appeared in the *Journal of the Amer. Med. Assoc.* (Nos. 14 and 15, Vol. 49). S. P. Beebe of New York spoke upon the physiology of the thyroid gland, and while admitting that our knowledge of the thyroid function is largely emperical he shares in the belief that the thyroid is a true gland and should be included in the list of vital viscera. Complete removal of the thyroid and parathyroid glands causes in most mammals a more or less sudden death preceded by general tetanic symptoms. Further innumerable observers, including the author, have in the last ten years shown that the thyroid and parathyroid glands differ from one another histologically and functionally; thus, removal of the former is followed by a cachexia, and of the latter by a rapidly developing tetany and death in a few hours or few days. Further, while the parathyroid globulin when introduced into a tetanized animal has failed to relieve the symptoms, the thyroid globulin-iodin group seems to be the particularly active proteid. Thyroid feeding stimulates the nitrogenous metabolism. Reid Hunt has shown experimentally the detoxicating action of the thyroid. Blum believes there arises in the course of metabolism a toxic globulin which is detoxicated by the chemical addition of iodin in the thyroid, and further, exophthalmic goitre is caused by the escape into the circulation of large quantities of a partially iodized proteid; whereas Roos has shown that when glands from animals fed with large quantities of potassium iodide are tested physiologically they show an activity proportional to their iodine content.

Normally the thyroid gland contains three proteids—relatively little nucleoproteid, much globulin, and a smaller amount of albumin; the parathyroids, on the other hand, contain a large amount of nucleoproteid,

a very small proportion of globulin and still smaller amounts of albumin. Since the discovery of Baumann of the thyroglobulin and its organic iodine group, Oswald has found in simple colloid and parenchymatous goitre a relatively large amount of globulin poor in iodine, from which he bases his theory of the origin of the disease—namely, a flooding of the system with a globulin poor in iodine. This latter is after all in favour of the hypersecretion theory commonly accepted to-day.

As yet we have no satisfactory explanation of the mechanism of the hypersection theory: the tachycardia is assigned by Gley to inhibition of the vagus and stimulation of the accelerator nerves by the gland extracts, though recently it has been shown that the central nervous system may be in no way concerned with tachycardia.

Shaffer has made an interesting contribution to metabolism in this disease by demonstrating that the kreatinin excretion in the urine is below normal and more especially in the more toxic forms of the disease; further, with the low kreatinin excretion there is an increased kreatin excretion. As to the origin of the hyperactivity of the gland, nervous shock and compensatory hypertrophy during toxæmia are the two explanations. The former has some clinical and the latter some histological support.

"The Pathology of Exophthalmic Goitre" was presented by MacCallum, of Baltimore, who has devoted much time to the study of this subject. He first points out that none of the changes generally found have the character of primary changes, but "seem in each instance to be the response or reaction to some fundamental or primary disturbance of which as yet we have no very clear notion." In this disease the thyroid presents a similar picture to the changes described by Halsted and Marine in both the post-operative and spontaneous compensatory hypertrophy of the thyroid gland in dogs, though in neither of the latter were the symptoms of exophthalmic goitre observed. From a study of the material from sixty, more or less, typical cases, he describes the gland as usually slightly enlarged, but sometimes normal or even decreased in size; it presents a very congested appearance; the tissues are hard and more rigid than elastic; there is a grayish opacity, while the cut surface is dry and granular. Microscopically, there are strands of fibrous tissue separating the gland into lobular masses; the alveoli are irregular in size and form, full of colloid and lined with low cubical epithelium, which becomes columnar in the small as well as in the large alveoli and encroaches upon the lumen. Mitosis is frequent. He believes that the "colloid cells of Langendorff are the results of degenerative processes," and the "Schmelzepithel" of Hürthle is the effect of

mechanical dislodgement and disarrangement of the cells. In several cases, with especially severe symptoms, there were areas in which the epithelium was so enormously swollen as to practically obliterate the lumen of the alveolus. He recognizes three clinico-pathological groups: (1) severe cases in which the alveoli are normal in size, full of colloid and with elevation and folding of the epithelium; (2) with quite as intense symptoms, but large alveoli full of colloid and a most complicated folding of the epithelium; (3) milder cases in which the alveoli are large and full of colloid, but in which the alveolar epithelium is almost flat except in certain foci or in portions of the alveolar walls where it becomes cylindrical and thrown up into folds.

Further, there is increase in the lymphoid tissue in the thyroid gland itself as well as that of the pharynx, tonsils, tongue and the lymphatic and hæmolymph glands of the body generally, but more especially of the neck. The thymus too is enlarged and presents the same appearance as in the infant with the same process of phagocytosis. He could find no change in the parathyroids, sympathetic and central nervous system or in the hypophysis cerebri. He concludes by stating that while the theory of hypertrophy and functional overactivity of the thyroid is the only plausible explanation of the disease, yet it is the only example of spontaneous hypertrophy and overactivity of an organ which is detrimental to the rest of the body. Hence it has been suggested that some infection may be the primary cause, resulting in a non-suppurative thyroiditis after which the remainder becomes hypertrophied and its activities perverted.

L. F. Barker, under "The Diagnosis of Exophthalmic Goitre," discusses seriatim the clinical tetrad-struma, tachycardia, tremor and exophthalmos in addition to the various accessory ocular signs, psychic manifestations, etc. He emphasizes the ease with which the classical picture can be recognized in contrast to the "formes frustes" where some difficulty may be encountered. There is every stage in the "goiter heart," from the mild to the more severe form. The latter is of thyreotoxic origin in contrast to cardiac conditions of purely mechanical origin. He regards Wunderlich's "struma chloroticum" as a "thyreotoxic pseudochlorosis." Further, he states, "Hyperthyreosis" may have a very varied etiology—"toxic, infectious, reflex, obscure, metabolic, or still other in nature." In discussing the surgical treatment, he considers the only contraindications in uncomplicated cases are a feeble heart with very high pulse rate and marked mental excitation.

R. B. Preble, of Chicago, in his contribution on "The Medical Treatment," gives a very unbiased presentation of the various available thera-

peutic measures. He considers those first directed against the neurosis (diet, climate, hydrotherapy), and secondly, those to counteract the thyroid perversion (electricity, X-Rays, and various drugs). He considers the drugs, prepared from various glands as all useless, except the thyroid preparations, which are "positively harmful." As for the antitoxic or cytotoxic sera more is to be expected; there are two groups of these: (1) those from thyroidectomized animals, (2) those from animals treated with normal or pathological glands. The most recent of these is a serum by Rogers and Beebe containing nucleoproteid and thyroglobulin from normal and pathological glands. The author is more sanguine for the success of these cytotoxic remedies than for the other medical measures.

"The Surgical Treatment" was very ably discussed by Albert Kocher, the son of the celebrated Berne surgeon. His paper is based upon 315 operations in 254 cases of the disease. The mortality for the entire series was only 3.5 per cent., while in the last 90 cases not a single fatality occurred. This improvement is due not only to improvement in the technic but also to the care exercised in deciding the extent to which a given case will stand operative measures. Extensive operations were exceptional in the last 100 cases. The surgeon before operating must consider first is he dealing with a compensatory hypertrophy of the heart, usually accompanied by increased systolic blood pressure, or is it a cardiac dilatation as indicated by a low pressure and irregularity of the pulse; in the latter case extreme care is necessary. Secondly, he must determine the degree of intoxication at the time of operation as evidenced by insomnia, nervousness, fatigue, weakness, diarrhœa, vomiting and marked tachycardia with an irregular pulse and a very vascular thyroid. Such symptoms contraindicate an extensive operation.

Further, von Steiger has shown the presence of an increase in the number of lymphocytes and a decrease in the polynuclear forms—the total number of leucocytes being normal or subnormal. The lymphocytes are sometimes absolutely increased but more often merely relatively. "This increase is proportional to the degree of the disease, and if there is no increase of the lymphocytes the case is an especially serious one." This lymphocytosis is interesting in connexion with the tendency to lymphatic hyperplasia noted by the pathologists.

The post-operative aggravation of the symptoms (due mostly to hæmorrhage and the absorption of the toxic blood) has disappeared by observing the most careful avoidance of any bleeding, by the ligation of every small vessel and by the avoidance of injury to the portion of the gland to be left. When the immediate effect of the operation is

ever there is a striking improvement in many of the cases; thus, 83 per cent. of all the cases from Kocher's clinic were cured; 73 per cent. of primary cases were healed; 92 per cent. of cases complicating simple goiter, and 100 per cent. of vascular goiters. The time for recovery varied greatly, especially for the cardiac and ocular symptoms. As to the method, Kocher recommends repeated operations with the patient under close observation and with the aid of medical treatment. Distinct vascular symptoms should at once indicate surgical measures. In long-standing cases the organic changes present in the heart and the fear of hypothyroidism necessitate great care.

Professor Halsted, of Baltimore, in the discussion following the symposium, spoke of his surprisingly good results in 90 cases treated surgically (mortality 2.2 per cent.). C. H. Mayo, of Rochester, Minn., reported 176 cases of hyperthyroidism operated on with a mortality of 5.7 per cent. C. P. H.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

E. H. Hensteen. "Spontaneous Rupture of the Aorta." *Norsk. Mag. for Laegevidenskaben,* 1907, p. 506.

Much doubt has been thrown on the possibility of Spontaneous Rupture of the Arteries in a healthy subject. Cases occasionally occur in which, by the release of the supporting framework about the artery, an aneurysm has developed. These are particularly noted after gun shot wounds, and, occasionally, consequent to an infective process in the neighbouring tissue. That it is possible, however, to bring about a dilatation of the vessels, and even rupture by the high arterial tension in a healthy vessel appears most unusual. One cannot but believe that there must be in these cases a great disproportion between the expelling power of the heart and the strength of the vessel wall, and such a condition cannot be considered as normal.

The author reports a case of a well built and healthy workman of 23, who took up his military service as a recruit. For some days before, he had taken alcohol in excess, and then marched ten miles in four hours. He complained of severe pains in the chest while under way, but examination gave negative findings, and he was again sent to work. During his work, he suddenly fell over and died. At autopsy the left heart was somewhat hypertrophied, but was, otherwise, normal, save for a small calcifietd plaque below the aortic cusps. One inch above the aortic ring was a rectangular rupture in the posterior part of

the aortic wall. The horizontal limb measured 1¾ inches, and the vertical one, one inch. The horizontal limb alone perforated all the coats of the vessel, while the vertical one passed only as deep as the media. The rent was sharp, as if cut by a knife, and 500 cc. of blood had escaped into the pericardium. Microscopical examination of the aorta, at the site of lesion, showed no pathological change, and arteriosclerosis was not present in any part of the vessel. The author is inclined to believe that the main damage was done a day or two previous to death.

That the smaller vessels, mainly the capillaries ,do rupture by excessive heart action is not infrequently seen in cases of death from violence when numerous petechial hæmorrhages are found on the various surfaces of the body, but it is most unusual that the strong arteries should break without previous disease in them.

George G. Packe, M.A., M.B. "The Etiology and Morbid Anatomy of Cancer of the Stomach." *Medical Chronicle,* 1907, XLV, p. 213.

The author has compiled his report from the post mortem records of St. George's Hospital, London. These reports cover a period of ten years (1890-1900), but the author does not state the number of autopsies represented in all.

Of the internal organs, the stomach is most frequently affected with cancer, and, next, in order of frequency, is the œsophagus, while his reports show that the uterus is only ninth in frequency.

It is generally accepted that cancer of the various organs is increasing in frequency, and the author finds that the ratios of increase of primary cancer of the stomach are out of proportion to the ratios of increase of primary cancer elsewhere. This increase in the proportion of primary cancers is partly ascribed to improved methods of diagnosis, but cannot be entirely explained on that ground .Males are most frequently affected, being in the proportion of 1.85 to 1 of females. The age incidence was from sixteen to eighty years, with an average of 49.3 years. The average for male cases was about 51 years.

The author finds that a previous family history of cancer lends little assistance as an etiological factor, for, in 119 cases, there were only eight cases with a family history of cancer, none of which were of the stomach. He points out that the occurrence of syphilis and cancer is unusual, four only of his 228 cases gave this combination. He finds that occupation does not play any part in the etiology of the disease. There is, however, a relation between gastric ulcer and cancer of the

stomach. Three of his cases showed definitely the origin of the cancer at a healing peptic ulcer. A relationship, however, is not to be made out between gastritis and cancer, although in eight cases a history of excess alcohol was present .

The situation of the malignant growth was far the most frequently at the pylorus (55.7 per cent.). General involvement of the stomach was next in frequency, with 10 per cent., and the cardia was involved in 8.7 per cent. of the cases.

The author distinguishes three types of pyloric cancer; the first of which is limited to the pylorus; the second spreads diffusely from the pylorus; and the third extends from the pylorus into the duodenum. The histological characters of the growth are of two kinds; the cylindrical celled and the spheroidal celled cancers, the latter being most frequently met with. The histological growth, however, has no relation to the incidence of metasases or to ulceration. The œsophagus is found to be the chief seat of primary growth in secondary cancer of the stomach; the pancreas follows next in order of frequency.

E. D. Telford. "A Case of Acute Dilatation of the Stomach." *Medical Chronicle,* 1907, xlvi, p. 227.

Acute dilatation of the stomach is a rare disease, difficult of diagnosis. The case reported by the author is incomplete in that the clinical history is wanting. The disease occurred in a boy of sixteen years, who was taken ill with severe pains in the upper abdomen. These improved after about twenty-four hours, but returned again on the third day, with profuse vomiting. This continued for some hours, when he suddenly collapsed and died. Death thus occurred within three days of the onset, and thirty-five hours after the first vomiting. The stomach was found to be enormously distended, containing six pints of fluid. This distension also occupied the first and second parts of the duodenum, while the third portion of the duodenum was collapsed. The pylorus was so distended that it was almost imperceptible. The author was unable to satisfy himself that the crossing of the superior mesenteric vessels had constricted the bowel. It was only possible to affirm that the distension ceased at the point at which the vessels crossed. The case appears to have been a typical one of acute dilatation of the stomach; but, like many of the other reported cases, the exciting cause was difficult to determine. The boy had been in good health, and had not suffered from any debilatating illness which, in some cases, is given to account for the sagging of the small intestines, with the stretching of the mesentery over the duodenum. The enormous amount of fluid,

which was secreted into the stomach in this case, is interesting in illustrating the active function of the stomach. The only interesting point that the author was able to obtain in the previous history was the occurrence of six attacks similar in character to the fatal one.

C. Loewenstein. "Protozoan Like Bodies in the Organs of Children." *Cnt. f. Allge. Path.*, 1907, xviii, p. 513.

Ribbert and others have described in the organs of syphilitic children peculiar protozooan-like bodies. These bodies are large, varying from 20 to 30 microns in diameter. They are coarsely granulated, and contain a number of vacuoles. The nucleus is large, and a distinct nucleolus can be made out.

The author has examined the parotids of thirty children, varying in age from two days to two years, and has found these bodies in four cases. The bodies appear within the alveoli, particularly in the secreting ducts. He has also found them in scrapings from the buccal mucosa and in the secretion from Stenson's duct. The author was not able to associate these bodies with any lesions present in the subject. He considers them to be protozoa, of the nature of coccidia.

GYNÆCOLOGY.

UNDER THE CHARGE OF WILLIAM GARDNER.

In 1906 gynæcology proved itself neither a barren nor a vintage year. Of a purely scientific kind but few additions have been made, and these merely of detail and along the older lines of research; while from the practical side, either operative or therapeutic, has come no great procedure, or no signal specific. There are evidences everywhere of greater accuracy, perfection of technique, more judicial selection and nicer care. But there are only these, and the actual advance has not been great.

The *annual returns* of the year I have divided into two classes:—I. Returns purely Scientific; II. Returns Practical, Operative and Therapeutic.

(I.)—*Returns purely Scientific*—(*a*) *Anatomy;* (*b*) *Pathology.*

(*a*) Anatomy. Labhardt, in the *Archiv. für Gynäkologie*, has communicated a lengthy article on "The Relation of the Nerves in the Uterus,"—his work being carried out at the University of Basel.

In 75 pages Labhardt attempts to answer the following questions:—

(1) How do the nerve fibres run in the uterine tissue.

(2) How do the fibres end in the myometrium, and how in the mucous membrane.

(3) Are there ganglion cells in the substance of the uterus.

This research was carried out on rabbits and the human uterus, and the stains employed were only the special Golgi and Methylene Blue. The value of the paper is dependent chiefly on a systematic review of the previous literature of the subject, and his classification of the antecedent "cloud of witnesses" in the matter of the uterine nerve supply. The sum total of our present-day knowledge of the innervation of the uterus may be summarized as follows:—

The uterus is supplied by nerve fibres of both sympathetic and cerebro-spinal origin. The sympathetic fibres belong to the lower derivations of the solar ganglia, as contained in the aortic, renal and hypogastric plexuses, with auxiliary fibres from the lumbar and sacral sympathetic ganglia. The fibres are supplied to the uterus chiefly from the hypogastric and renal plexuses, and they course along the walls of the blood-vessels. A few fibres enter the uterus directly, but the greater number run first to the cervical ganglia. These ganglia lie one on either side between the layers of the broad ligament close to the cervix uteri and midway in its length. A second pair of ganglia is found one on either side near the uterine insertion of the ovarian ligament. These latter are regarded as not true ganglia, but rather a mere plexus of nerve fibres, the meeting-place of the ovarian and uterine branches.

The cerebro-spinal nerves arise from the anterior primary divisions of the second, third and fourth sacral nerves, chiefly the third; before reaching the uterus they enter and communicate with the sympathetic fibres in the cervical ganglia. Thus the main nerve of distribution to the uterus, both cerebro-spinal and sympathetic, is through these ganglia. Beyond the ganglia the two kinds of nerve-fibres travel together, in company with the blood-vessels; they are most abundant in the middle muscular layer of the uterine wall; they run for the most part horizontally,and many of their terminals reach the mucosa.

Those conclusions, Labhardt remarks, are in general accepted, and they afford a foundation from which to prosecute further research. His own investigations follow, and are here shortly summarized.

"There is a rich nervous system in the human uterus. The thicker nerve trunks run within the middle muscular layer, and give off branches here which have an inter-fasicular position, and from which intra-fasicular terminals spring. The thicker trunks contain numerous colourless and medullated fibres. How the nerves finally end in the

muscle, how deeply they extend into the mucosa, and where and how they terminate therein, I have not been able to determine either in rabbits or the human specimen. Ganglion cells within the uterus—intrinsic ganglion cells—I have not found, and the view that there is an intramural ganglion system is without foundation."

Construction of the uterus follows: (*a*) direct irritation of the uterine musculature; (*b*) irritation of the cervical ganglia, direct or reflex.

Fellner of Franzensbad, in a paper published in the Zentralblatt—"The Influence of the Uterine Nerves upon the Atony of the Non-puerperal Uterus," considers that he is able to demonstrate the nerves which produce this atony. He contends that the innervation of the two parts of the uterus—cervix and corpus—is distinct; and that there is an antagonistic action between the two. He describes a nerve, the *nervous erigens* a branch of the sacral plexus, which is the motor nerve for the longitudinal muscle fibres of the corpus, and the circular fibres of the cervix; it is also the inhibitory nerve for the circular muscle fibres of the corpus and the longitudinal fibres of the cervix. This nervous erigens is the vaso-dilator of the vessels of the uterus, and communicates only with the ganglia in the fundus uteri, *i.e.*, the ganglia at the uterine end of the ovarian ligament.

The *hypogastric nerve*, a pair like the first, springs from the ganglion mesentericum posterior and ends in the hypogastric plexus; it possesses fibres which functionate conversely to the nervous erigens, *i.e.*, they are motor nerves for the circular muscular fibres of the corpus and the longitudinal muscle fibres of the cervix; and are inhibatory nerves to the longitudinal muscles of the corpus and the circular fibres of the cervix. These hypogastric nerves communicate with the cervical ganglia and are the vaso-constrictor nerves of the vessels of the uterus.

In any severe or prolonged irritation to the cervical canal, for example, dilatation by steel dilators or by a sponge tent, the cervical ganglia become fatigued and paralyzed. This paralysis is communicated to the hypogastric nerves and through them to the circular muscle fibres of the corpus. Hence the uterus becomes more spherical with its walls thickened in the vertical diameters (the longitudinal fibres are not paralyzed), while the cornua hang like loose bags. The vessels of the uterus become enlarged and engorged. These phenomena are the result of prolonged irritation of the cervical ganglia. But now with curetting of the uterus, or as a result of disease, if the fundal ganglia also become paralyzed, then have we complete atony of the uterus. The uterus becomes simply a large justo-major uterus, with walls uniformly relaxed

and thin. Fellner conducted his experiments on animals. He has not made his special nerves or their origins very clear. He gives, however, the best explanation of post-operative atony of the uterus, with which all gynæcologists are familiar.

Aschoff, in the *Zeitschrift f. Geb. u. Gyn.*, contributes a paper upon the "Anatomy of the Lower Uterine" Segment and throws light upon this much-disputed area. He maintains that the macroscopic designation of the cervix uteri does not correspond to the microscopic.

Macroscopically, the cervix extends from the external os to the narrowest part of the uterine cavity, *i.e.*, to about the middle of the corpus of the virgin uterus—a spot marked by a slight constriction externally, by the line of attachment of the peritoneum, and by the presence of the circular vein. This upper limit Aschoff suggests to designate as "Orificium Internum Anatomicum."

Microscopically, the cervix uteri extends only to the upper limit of the true cervical mucosa, a level some distance below the first. At this point the junction of the cervical and corporeal mucosa, Aschoff puts the internal orifice of the cervix—"Orificium Internum Histologicum."

Between the histological, or internal orifice of the cervix, and the anatomical, or internal orifice of the uterus, is the isthmus uteri. This isthmus in pregnancy becomes the lower uterine segment. The upper limit of this segment, viz., the internal orifice of the uterus, indicates the level of the retraction ring.

(*b*) Pathology.—In the pathological returns of the year perhaps the first place falls to the subject of chronic metritis—"Fibrosis Uteri," so-called.

This is a condition where the uterus becomes usually symmetrically enlarged, with its muscular walls uniformly thickened; where it becomes firmer in consistence; where the urgent symptom is severe, and persistent hæmorrhage which a curetting of the mucosa oftentimes merely aggravates.

During the year several papers have appeared and our knowledge of the subject has been considerably increased. The chief virtue of these papers lies in the fact that their authors, or most of them, have been content to describe faithfully the clinical and pathological findings in their respective cases—to record facts. Elaborate and more or less imaginative classifications have so died a natural death. That all true progress is towards simplicity has been here well exemplified.

The names of these observers in their alphabetical order are:—Addinsell, Anspach, Donald, Gardner and Goodall, Macdonald, Shaw, and Wittek.

Of these papers the ones by Gardner and Goodall, and by Fletcher Shaw are easily the best.

Gardner and Goodall's paper was read before the British Medical Association in Toronto, last August, and appears in the Association's Journal of the following November; while Shaw's thesis is to be found in the *Empire Journal* of February of this year.

And first, it is necessary to remember that though the terms chronic metritis and endometritis are here used, the histological picture in most of the cases is not that of an inflammatory process—there is little round-celled infiltration. Rather is the condition a hyperplasia and a hypertrophy, an increase in the number and in the size of the several cell constituents of the parts. Chronic metritis so comes to mean not a chronic inflammation of the mesometrium or muscular wall of the uterus, but an increase in the number and in the size of the connective tissue and muscle-cells of this wall, the relative proportion between these two issues being in many cases not disturbed.

Gardner and Goodall begin their paper with a clear and succinct review of the literature of the subject from 1860. Nine cases of the condition are then recorded, wherein are carefully detailed the clinical histories and pathological findings. The question of etiology is then discussed,

These authors divide the cases of so-called chronic metritis, "Fibrosis Uteri," into two groups:—

(1) Those where the changes are parietal in the uterine wall, these changes being a hyperplasia and a hypertrophy of the cell-elements of this wall with a tendency to the preponderance therein of fibrous tissue, and the occurrence of a hyalin degeneration.

(2) Where the changes are localized to the vessel walls, the arteries and veins—the Arterio-Sclerotic type. Here the primary changes are in the vessel walls; they are of the usual arterio-sclerotic type, and the changes in the uterine wall are solely secondary and nutritional. In this variety the preponderance of fibrous tissue is much more marked.

The chief value of this paper lies in its discernment and differentiation of these two pathological types. Not an easy undertaking when one remembers the chaos of the previously existing classifications.

Shaw's paper, "The Pathology of Chronic Metritis," is also a valuable one. He gives us the result of a painstaking research wherein he examined 38 uteri extirpated for chronic metritis, and 23 normal uteri from women of different ages. These last were used as control specimens.

Shaw takes up first the changes in the blood-vessels in the 38 cases of chronic metritis, comparing the vessels in these cases with those in the normal uteri. His results he tabulates as follows:—

Vessels not altered—15 cases.

Vessels slightly enlarged, walls not thickened—2 cases.

Vessels decreased in number—6 cases.

Vessels increased in number—4 cases.

Few vessels with thickened media—6 cases.

Few vessels with hyalin or colloid degeneration—4 cases.

Combination of the last two—1 case.

Of these 38 cases, 15 were forty years old or upwards, and the eldest was fifty-four.

Shaw accordingly refuses to accept the arterio-sclerotic type of metritis. He affirms that these arterio-sclerotic changes are often found in a similar degree in so-called normal uteri, and that these changes do not account for the uterine hæmorrhages.

Shaw next considers the question of the change in the relative amounts of connective tissue and muscular tissue in the uterine wall. As he says, it is usually conceived that there is in chronic metritis a great proportional increase in the fibrous tissue. His method of estimating the relative amounts of these tissues is as follows.

The "slide" representing the whole thickness of the uterine wall was put on a mechanical stage, and consecutive fields estimated one after another. This was done two or three times, and with an interval of some months between the estimations. He states that in all his cases the uterine wall was greatly thickened, the average thickness being 18.1 mm. The normal thickness of the wall is 8.7 mm. The increased thickness was due to hypertrophy and hyperplasia in both the muscular and connective tissue elements, and there was no relative diminution in the amount of muscular tissue.

It has been shown by Meier that the proportion of connective tissue to muscular tissue in the normal uterine wall is 46.5 per cent. Shaw, in his normal uteri, found the proportion 39.4 per cent. In his cases of chronic metritis the proportion of fibrous tissue was 40.4 per cent. It is clear from this, he says, that a difference of 1 per cent. in the proportion of connective tissue in the normal uteri and those of chronic metritis, would not account for the great increase of 10 m. in the thickness of the uterine wall.

We can sum up the advance made in our knowledge of the condition of "Fibrosis Uteri" by saying that the most common type is not a *fibrosis* but proportional hypertrophy and hyperplasia of the cell ele-

ments of the uterine wall. The *fibrosis* is exceptional and is found most marked in those cases where a primary change is in the falls of the vessel—an arterio sclerosis.

A lipoma of the uterus has been described by A. G. Ellis of Philadelphia—the twelfth case recorded in all literature. The lipoma was found post mortem in a woman of sixty, lying interstitially in the wall of the fundus, sub-spherical in shape, and measuring 8 by 6.5 cm. in diameter. It consisted of true fat cells with small interlacing bundles of fibrous tissue.

The point of interest is as to its origin, for the normal uterus contains no adipose tissue. These tumours probably arise from embryonal fat cells, lipoblasts which have been carried into the substance of the uterine wall along with the growth of the blood vessels. Meier states that he has seen fat cells extending from the parametrium into the substance of the uterus along the course of the blood vessels.

Uterine Appendages.—One of the best papers of the year is that of Adolf Glockner in the *Arch. f. Gyn.*—"The End-Results of Ovariotomy." He has collected 500 cases where proliferating tumours (not retention cysts) of the ovary have been removed, and his object is to show the end-results, especially in the matter of recurrence, or growth of a second tumour. Not the least important part of the paper is his classification of ovarian tumours. It is an anatomical classification modelled after Pfannenstiel, is simple and useful, and is as follows:—

I. Connective Tissue Tumours—fibroma, sarcoma.

II. Epithelial Tumours—(*a*) The simple serous cystoma; (*b*) the glandular cystoma, commonly the adenoma; cyst-adenoma pseudo-mucinosum; (*c*) the papillary cystoma; (*d*) the carcinoma.

III. Teratoid Tumours.—(*a*) dermoid; (*b*) teratoma; the paro-varian.

In his estimation of end-results, Glockner followed his 500 cases for ten years. The following are his results:—

Fibrosa of the ovary, 9 cases; 8 remained free from recurrence.

Sarcoma of the ovary, 15 cases. Both ovaries removed. Recurrence in 8 cases, in 7 within one year, in 1 between the fifth and sixth year.

Simple serous cystoma, 29 cases. Opposite ovary not removed. 99.6 per cent. remained free from recurrence.

Glandular cystoma, 285 cases; 94 per cent. free from recurrence.

When a synchronous extirpation of the second ovary was performed, only .9 per cent. recurred. When the second ovary was left 4.6 per cent. showed recurrence.

Papillary cystoma, 19 cases. Both ovaries removed. Recurrence 61 per cent. Free from recurrence, 36.1 per cent. Questionable, 2.89

per cent. Of the recurrences 54 per cent. occurred in the first year, and 22 per cent. in the second.

Teratoid Tumours.—(*a*) The dermoid: recurrence in 4.2 per cent. in two cases, both in the seventh year after operation, and both where the same ovary was left.

(*b*) Teratoma, 2 cases: 1 remained free and 1 recurred in a few weeks—metastases.

(*c*) Parovarian cysts, 39 cases: recurrence in 1 case on the opposite side five years and nine months after the first operation.

The author then says that, judging from the above, it can be stated that fibroma of the ovary, serous cyst adenoma, and dermoid cystoma are benign tumours; in these cases the second ovary should not be removed, unless the patient is at the climacteric, for the risk of further growth is very small. The glandular cystoma clinically must be considered innocent, and yet it is never above suspicion. Ten cases showed recurrence. It is difficult in a large tumour to recognize small cancerous areas. In all cases of doubt, remove the second ovary. He calls attention to the pseudo-papillary cystoma, and says that the prognosis here is as good as in the ordinary variety of cyst adenoma.

In papillary cystomata the prognosis is not so good. They are apt to recur, and are frequently bi-lateral, even though the growth in one ovary be extremely small. It is wise to remove the second ovary in all these cases.

Carcinoma of the Ovary.—Remove both ovaries, even if one appear healthy, cutting as widely as possible. The removal of the uterus improves the prognosis.

II.—*Practical Returns of the Year.*

Cancer of the Uterus.—While the etiology of cancer has been extensively discussed, nothing new or definite has emerged. In its operative treatment the swing of the pendulum has rather been a little backward from the extremely radical excursion of a year ago. Kundrat, Baisch and Schauta have studied the pathological findings in the pelvic lymphatics in cases of cancer of the uterus. Schauta shows that the involvement of the individual groups of glands bears no constant relation to other groups, *i.e.*, there is no order of sequence in this involvement. Distal glands are often infected with the cancer cells before the proximal, and even though infected, the glands may show no palpable increase in size. Schauta claims that in only 13.3 per cent. of the specimens that he dissected, would there have been any hope in attempting glandular extirpation. The reasonable operative rule seems to be to extirpate as widely as possible, consonant with a fair degree of risk, *i.e.*, remove as much or the parametrium as possible, dissecting

out the ureters and pushing well forward the whole bladder, in this way a wide cuff of healthy vaginal mucosa below the disease being easily and safely procurable. This operation gives a mortality of about 6 per cent. in selected cases. All lymphatic infection beyond this area cannot be estimated, and a wide extirpation of the glands doubles the mortality even in the hands of the best surgeons. The consensus of opinion seems to be that this doubled mortality is too high a price to pay for the chance case.

In America interest has been keenly awakened upon this subject. Last October Wertheim read his paper before the Chicago Society. He described his operations for the removal of the cancerous uterus and claims that after five years 60 per cent. of his cases have remained free from recurrence. Dührssen of Berlin communicated to the same Society a paper, in which he advocates the vaginal rather than the abdominal route in operating upon all cases of cancerous uteri, and he claims to have been the first to have used the perineal incision, known generally as Suchardt's. He does not give any exact statistics.

Speaking generally, removal of the cancerous uterus by the abdominal route has gained immensely in favour during the past year.

The past year has seen the first organized attempt throughout the civilized world to educate both the profession and the laity in the matter of the earlier recognition of cancer of the uterus. It seems that in England and Wales alone, four thousand women die of cancer each year, and not less than 95 per cent. of all cases of cancer seek medical aid when all prospect of permanent relief is out of the question. The urgent need is always the *earlier diagnosis of the disease*. The education of physicians, nurses, midwives, and even of the public itself, in the early and frequently characteristic signs and symptoms. And in this connexion it is well to remember Craig's analyses of the earliest signs and symptoms in 78 cases. In 45 cases leucorrhœa was the first sign; in 21 cases hæmorrhage was the first sign; and in 12 cases pain was the first symptom.

This movement has been carried on both in Europe and America. In England Lewers suggests the issue of a leaflet to the general public so that every woman of adult age should know something of the early signs and symptoms of cancer. In Germany Winter of Königsberg, and Dührssen have written much, while in Austria, the Austrian Cancer Committee has prepared and distributed to all practitioners a pamphlet, "Principiis Oosta," wherein is insisted upon the importance of the early examination of all such cases.

In America, Haggard, Maier, Craig, Simpson and Sampson have all devoted much time to this subject. Simpson makes the statement

that out of every twenty-eight women who pass the age of thirty, one will be the victim of cancer of the uterus.

The After-Treatment of Abdominal Operations.—There has been a growing tendency to keep these operative cases in the recumbent posture a much shorter time than the traditional and usually prescribed three weeks. The claim made is that the twenty-one days rest in bed is needlessly long, that the risk of a ventral hernia is in no wise increased, as from the very first where the abdominal incision is carefully closed by stage suturing, its original strength is at once secured.

The two extremists in this movement of so-called "heretical after-treatment" are Boldt and Ries. The former gives his experience of 384 cases, and the latter of 500 cases, where the patient, after an abdominal operation, was got out of bed as early as the second or third day. These two authorities claim no untoward result, while they maintain that the following advantages are secured for the patient, viz., less nausea and vomiting; less abdominal distension; more spontaneous action of the bowel; less liability to bronchial and pulmonary troubles and circulatory disturbances; better assimilation of food and less weakening of the general condition.

The general feeling throughout America is toward a middle course, keeping the patient recumbent for from ten to twelve days. Movement of the patient earlier than this is generally regarded to be fraught with danger of thrombosis and embolism.

The following is a list of the more important publications issued throughout the year:—

Martin of Greifswald—Diseases of Women.

Rudolph—Bier's Stasis and Therapy in Gynæcology.

Amann—Diseases of the Pelvic Connective Tissue

Döderlein—Operative Gynæcology.

Giles—Gynæcological Diagnosis.

Ashton—Diseases of Women, second edition.

Webster—Gynæcology.

During the year the deaths among us include those of:—

Gusserow, Adolf, Ludwig, Sigismund, 1836—1905; late Professor of Gynæcology in Berlin.

Bell, Robert, Hamilton, 1871—1906; Obstetric Tutor and Registrar in St. Thoma's Hospital, London.

Henrotin, Fernand, 1847—1906; Professor of Gynæcology in the Chicago Policlinic.

Cameron, John D., 1869—1907; Lecturer in Gynæcology, McGill University, Assistant Gynæcologist to the Montreal General Hospital.

W. W. C.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The first regular meeting of the Session 1907-08 was held Friday evening, October 4th, 1907, Dr. Wesley Mills, President, occupied the Chair.

The retiring President, Dr. F. G. Finley, gave a *résumé* of the work of the last session.

PRIMARY COLLOID CARCINOMA OF THE VERIFORM APPENDIX.

E. Hamilton White, M.D.—In the absence of Dr. White, Dr. C. B. Keenan read this case report.

THE END RESULTS OF CARCINOMA OF THE BREAST.

G. E. Armstrong, M.D., read the paper of the evening dealing with operations on the breast for cancer from 1891 to 1907.

F. J. Shepherd, M.D., said that in 50 cases, mostly private, operated on between 1894 and 1904, he had been able to trace 31. Of these 15 are still alive, 16 are dead; one died of tuberculosis without recurrence after eight years; one died after five years of some other disease, the rest died in three years and under of recurrence. Dr. Shepherd had one death from acute mania following this operation. Of the living cases one is alive after ten years; one after nine; one after seven; two after six years; and three four years after operation; the rest are still alive without recurrence three years after operation. He had one case alive twenty years after operation. Dr. Ransohoff, of Cincinnati, reports a case of recurrence twenty-nine years after operation, and Dr. Shepherd reported a case of recurrence in the cervical glands eleven years after operation. One is never sure when the disease is cured; the three year limit has long been abandoned, except by the makers of statistics. Dr. Shepherd has had many recurrences after four years, especially in those cases where the original tumour was situated on the inner zone of the breast and where the secondary disease or so-called recurrence is in the retrosternal glands. In these cases it is not uncommon for the patients to live five or six years. The extent of the operation was next spoken of. Dr. Halstead, of Baltimore, did most extensive operations and yet his statistics are no better than others, in fact, in the reports of the operations by all the surgeons of the Massachusetts General Hospital of Boston, some most conservative, the results are better than those of Halstead's. Many years ago Dr. Shepherd used to, as a routine method, remove the supraclavicular glands, but long ago gave it up, for if these glands are infiltrated, those in front of the trachea and down the mediastinum are also affected. The operation performed by the speaker included the removal of the pectoralis major muscle and axillary glands and lymphatics and as much skin as is

deemed necessary. In very few of his cases has there been any local recurrence. As to the examination of the patient Dr. Shepherd always stands behind her pressing the tumour against the chest wall and thus getting a better idea of the extent and consistency of the tumour. Many cases which have been looked upon as malignant have turned out to be cysts hyperdistended and devoid of fluctuation. The speaker's routine practice was to aspirate every tumour and it was astonishing how many proved to be cystic. He had never seen any bad results from this procedure. It was also a rule of his to advise removal of every solid tumour in women over thirty-five.

THE POSITION OF THE OSTEOPATH.

The communication from Dr. Bristow, explaining the new law regulating the practice of medicine, shows us how a sect, whose entire fabric is based upon erroneous premises, may gain prominence and be recognized by the Legislature of the State as a body of earnest, conscientious practitioners, who are to be entrusted with the care and treatment of disease. The fact that the practice of medicine is not an exact science, has aided them in their contentions; no cult, however, based upon such false theories as those of osteopathy should be classified under the laws of the State with the other schools of medicine. The dividing fence between the regular school, the eclectic school and the school of homœopathy have in recent years been generally demolished, and the so-called practitioners of homœopathy and eclecticism have, almost without exception, adopted the therapeutic agencies of the older school of medicine in addition to their own.

Although the present bill recognizes a school of osteopathy—and such recognition we hold to be unfortunate—still it is the lesser of two evils. It makes it necessary for the individual to devote just as much time and study to obtain a license to practice osteopathy as it would to obtain a license to practice medicine. An osteopath then receives the degree of D.O., after having studied three or four years in a recognized school of osteopathy, and at the end of that time cannot prescribe for a patient, nor can he use drugs in any form; he can simply practice osteopathy. In other words, it destroys one of the principal advantages of osteopathy, namely: the ability to practice medicine or a branch of medicine without devoting a sufficient number of years to mastering the essentials of the science.

It is believed that this bill will do away with all the objectionable features of osteopathy, and it certainly will help greatly to control the practice of other forms of quackery in the State of New York.—*Long Island Medical Journal.*

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CARCINOMA OF THE BREAST.

BY

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Mr. President, Ladies and Gentlemen.

Some months ago, in response to an invitation from the Secretary of the American Surgical Association to contribute my experience on the end results of primary operations for carcinoma of the breast, I undertook to trace the cases that I had operated upon. As I happened to be in Germany at the time of the meeting at Washington, and unable to contribute my results there, I have thought that they might make an interesting subject for discussion in this Society.

During the period from 1891 to August, 1907, I removed 90 mammary tumours. Of these 26 were benign, mostly fibro-adenomata; 63 were cases of carcinoma, and 1 a large sarcoma. Sixty-four were malignant. Of the 63 carcinomatous tumours, 46 were removed before September, 1904, and are, therefore, available for consideration of what are called final results. Eighteen cannot be traced. Of the remaining 28, three died within three years of other disease without local recurrence or metastases. Seven died within three years of the disease. In one the cause and date of death have not been determined: I have simply learned the fact that she is not at present living. Four died of metastases within a period of three years after operation. Thirteen were alive three years or more after operation. If we count all of the 18 untraced cases as dead of the disease within three years after operation, we have 13 recoveries out of 46, or 28¼ per cent.

That is hardly fair to statistics, and presents an unduly gloomy outlook to a patient suffering from cancer of the breast. In Montreal, with its large foreign and floating population, it is difficult to trace cases after they have left the hospital. I think it only fair to assume

Read before the Montreal Medico-Chirurgical Society, October 4th 1907

that some of these untraced cases may have lived three years or more without recurrence. Four died after a period of three years; one of metastases; one of perforation of the stomach seven years and four months after operation; one of some pulmonary condition without evidence of local recurrence or internal metastases, and one seven years after operation without any recurrence locally or any evidence of internal metastases.

Then again, in estimating the cures at 28¼ per cent., 3 cases dying within three years of other diseases without local recurrence or metastases have been excluded. It is quite possible that one of these three might not have suffered from recurrence had she lived three years or more afterwards. If we reckon our percentage on those that are traced we have 13 cures out of 28 cases, or 46⅓ per cent. This is obviously too high. Naturally the mortality among the untraced would be higher than among the traced. Cases should be classified; those operated upon before the glands are involved should give excellent results as compared with those in which the glands are already infiltrated. The patient should have the benefit of the doubt; as Halsted puts it, "Little notion of the value of an operative procedure can be gained unless some attempt be made to exclude or consider apart cancer so far advanced that however radical the operation only a portion of the disease can be removed." Available statistics are of little value in answering the patient's query, "What are my chances of non-recurrence?" They are for the most part made from a run of cases. It is obvious that the early cases should receive more encouragement and a better prognosis than the long standing and advanced. There was no operation mortality in the 90 cases of breast tumour here reported.

All cases that applied during this period were operated upon with the exception of one whose condition did not warrant any major operation. In some of these the disease was of long-standing—seven years in three cases, with an average of forty-seven months. The axillary glands were palpable in 18 cases. The fact that they are not palpable, however, must not be regarded as conclusive evidence that they are not affected. In three cases the supraclavicular glands were palpable, and in one case were palpable on both sides of the neck. In 14 cases in which the enlarged glands were reported upon by the pathologist after removal, the form of disease was scirrhus in 5; medullary in 1, and carcinoma in 2, and in 6 cases they were reported as enlarged, but not infiltrated with cancer cells.

The most frequent age was between forty-six and fifty-five years. The youngest was twenty-seven, and the oldest sixty-nine, with an aver-

age of forty-eight. Three were single and twenty-four married. Two were nullipara. In 11 cases children had been borne, but two of them had not nursed.

The family history was stated in 13 cases and was negative in all but two; in one of these the mother had suffered from carcinoma of the breast, and in the second a sister had carcinoma of the rectum. In one there was a previous history of mammary abscess, and in one mastitis. In four cases there was a history of injury shortly antedating the discovery of the lump.

The site of the disease was stated in 23 cases, 26 per cent. occurring on the right side, and 74 per cent. on the left side. The most common situation being the upper outer quadrant.

The first symptom noted in 12 of these was the lump; in 9 of them pain was the first symptom; in one the pain was in the shoulder, and down the arm in another. Pain was altogether absent in 24 per cent. When present it was described as slight, lancinating or a dull aching pain. Oedema of the arm was noted in one case, and a discharge from the nipple in one.

Considering the class of cases and the late date at which many of them came to operation, these results are encouraging. I believe, however, that it is possible to improve them wonderfully. Improved surgical technique has made it feasible and comparatively safe to remove these growths with a wide margin of healthy tissue together with the lymphatics in the axilla and cervical regions.

The great improvement in the future is to be made by the general diffusion of knowledge among the laity, and the earlier diagnosis of the case by the family physician, who sees nearly all of them in the first instance. The ordinary text-book diagnosis is that of a well-developed tumour associated with lymphatic gland enlargement. The best results are to be obtained in early cases discovered before the glands along the lower border of the pectoralis major, in the axilla, or in the triangles of the neck are involved.

When consulted by a patient as to the presence and nature of a mammary tumour, the physician should not rest satisfied until he has definitely determined whether it is benign or malignant, or that it is impossible for him to say which. Two symptoms well worked out should, in the majority of instances, establish the condition with a very considerable degree of certainty. First, is there a tumour? If so, it should be easily palpable between the fingers and the chest wall. I may be pardoned for alluding to so elementary a method of physical diagnosis, but failure to adopt this practice has led to unpleasantness

and an error in diagnosis on so many occasions, that I think it not inappropriate to allude to it here. In many breasts with thickening of the ducts, if a portion is lifted up between the fingers it will give the impression of a tumour. If now the breast is carefully palpated between the fingers and the chest wall the tumour which was previously felt will be found to have disappeared. If a tumour is present it can be easily felt under the fingers when pressed against the chest wall. A malignant nodule cannot be moved within the gland. It is convenient when making this examination to have the patient in a recumbent position.

Secondly, is the tumour attached to the skin? In other words, are the suspensory ligaments of Cooper involved? The slightest shortening of the trabeculæ, so little as only to be detected on comparison of the two sides is of the greatest significance. There are two delicate tests for determining this point. If the breast is pushed towards the tumour and these suspensory ligaments are shortened a dimple will appear. Another sign due to the same cause has been clearly brought out by Mr. Cheatle of London, and that is, a lack of symmetry in the spherical outline of the breast. To obtain this symptom accurately, the eyes of the observer should be on a level with the breast, and if there is any flattening, it is then readily detected. These two signs, the presence of a tumour not movable within the gland, dragging on the skin when the breast is pushed on one side, with flattening over the tumour should, I think, establish with definite certainty the character of malignancy.

Later on, when the growth itself becomes adherent to the skin, the disease is in a much more advanced stage. A symptom always looked for by students is retraction of the nipple. Except in those cases where the disease is immediately beneath the nipple, this is a late sign, and when present, may be due to simple cysts, fibro-adenomata or preceding inflammatory conditions which have passed away. In some women the nipple is always more or less retracted. There is increasing evidence that the cysts developed in certain cases of so-called chronic mastitis should no longer be considered as inflammatory in origin as taught by Virchow and Koenig, but rather as the result of senile retrograde changes. This is the opinion of J. Collins Warren, and at the last meeting of the German Surgical Association, v. Saar of Vienna, took the same view, reporting four cases from Eiselsberg's clinic in support of his opinion. He advocated amputation of these breasts and removal of the axillary glands.

There is sometimes great difficulty in determining even at the operating table whether certain cysts are malignant or not. If they have

lost their lustre or are hæmorrhagic it is better to regard them as malignant.

Only too often the patient does not consult any physician until the growth is well-advanced, perhaps the glands involved and the skin adherent; but in early cases, I see no reason why recovery with permanent cure should not be obtained in 75 to 80 per cent. of cases. The diagnosis, it must be admitted, is not always as simple as this statement would seem to make it, but in cases of reasonable doubt regarding the nature of so lethal a disease as cancer of the breast, an exploratory incision should be advised. A portion of the tumour can be removed through a small incision made to one side which will leave a very small scar in a concealed position, and the diagnosis can then be established by a microscopical examination of the portion removed.

Small tumours are not necessarily early tumours, and it would seem almost criminal to ask a patient to remain under observation when a minor operation performed under local anæsthesia may settle the doubt. It may be said in a general way that multiple nodules in one breast rather favour a diagnosis of cystic change, or chronic mastitis. The same may be said when multiple tumours are palpable in both breasts, but a single nodule in one breast should always be regarded with suspicion, and one tumour in each breast as not necessarily benign.

There is just one other important question that I would like to raise here, and upon which, I would like an expression of opinion. It has happened to me twice to make a clinical diagnosis of malignant tumour of the breast—once in a patient seventy years of age, and once in a patient sixty years of age, which the pathologist did not confirm. In both instances a hard, palpable tumour was present in the breast with retraction of the suspensory ligaments and a loss of the normal contour of the breast over the tumour. In both cases axillary glands were palpable. In both instances the breasts were removed together with the glands in the axilla, and in both cases the pathologist reported that neither the growth nor the glands were malignant. I do not question the correctness of the pathologist's report in these cases, but I ask the question, would a surgeon be justified in leaving a tumour of the breast under these circumstances with the aforementioned clinical evidences of malignancy after an exploratory incision and a rush diagnosis of non-malignancy? Would he be justified in removing the growth and leaving the glands? Personally, to both these questions I should reply in the negative. The presence of palpable glands in both axillæ and in the lower cervical triangles on each side of the neck would rather be evidence against than in favour of malignancy.

The early recognition is by far the most important point in dealing with carcinoma of the breast. Enlargement of the glands is evidence that the disease is already far afield. Union with the overlying skin or with the underlying pectoral fascia is evidence of considerable infiltration, and when the disease becomes fixed and attached to the ribs or perichondrium, as indicated by fixity and immovableness of the tumour in all positions of the arm, it is questionable if sufficient benefit can be expected to justify extensive operative procedure.

The direction and extent of incision in the removal of the breast is determined largely by our knowledge of the spread of the disease. Although it is quite true that cancer cells may be carried by the blood vessels, this method of diffusion would seem to be exceptional. Handley, "In showing that cancer cells in the blood excite thrombosis and that the thrombus as it organizes usually destroys or renders them harmless, Goldham and Schmidt seem to have established a fact of primary importance, and one which is strongly opposed to the embolic theory as applied to carcinoma."

We are concerned chiefly with its spread along the lymphatics. Gerota has proved that the respective halves of the chest have not independent lymphatic systems. There is a free communication between the mammary glands through the lymphatics running in the subcutaneous tissue. This is the probable explanation, in some instances at least, of the appearance of the disease in the opposite breast, and that there is a free communication between the lymphatics of the breast and the anterior mediastinum and through these to the lymphatic glands on the opposite side of the neck. In one instance I removed a carcinomatous gland from the left side of the neck, the primary disease being in the right breast. The lymphatics of the right axilla were infiltrated, but none were found in the right cervical region. Heidenhain & Stiles have shown that carcinomatous emboli may become lodged a considerable distance from the primary focus. It is obviously necessary then to remove a good margin of the healthy tissue surrounding the growth, and from the fact that the lymphatics are more abundant in the subcutaneous tissue than in the skin, it is desirable to remove the subcutaneous tissue more widely than the overlying integument. This, however, should be done freely and without too much thought being given to the difficulties of closing the wound. Skin-grafting adds but little time to the operation, and the wide removal gives greatly increased freedom from danger of recurrence.

I have for some years adopted the suggestion of Willy Meyer and J. Collins Warren to dissect the axilla before removing the breast, and

at the same time, if necessary, to dissect the lower triangles of the neck. I have found this method of procedure to be more expeditious, and possibly it gives increased safety. In this way the distal lymphatics are first removed and clamped or enveloped in gauze. There is thus less danger of expressing the cancer cells to different parts along the lymphatic or blood vessels. For the same reason, in examining the breast, while, of course, it must be sufficiently handled and palpated to make the diagnosis certain, it is not wise to unduly prolong manipulations, which may dislodge cancer cells and start them along to distant parts. A good many die of metastases to distant organs, such as the liver, peritoneum, brain and bones. Are the cancer cells loosened and sent away along the vessels during manipulation of the cancer field before or during operation? If there is such a possibility, we should take every precaution to avoid it. It goes without saying, that during the remainder of the operation the knife should be kept always in healthy tissue. In closing the wound a useful flap may often be shaped from the loose tissue on the side of the chest, but there is something in the suggestion, that the man who is to close the wound should not be allowed to design the preliminary incision. If the growth is small and the skin abundant, so that the wound may be closed without grafting, the patient should be well and able to leave the hospital in ten days. If skin-grafting has been performed, it will be necessary to retain the dressings for ten days longer.

In operating for carcinoma I always remove the sternal portion of the pectoralis major, and the fascia from the anterior surface of the pectoralis minor. I have never seen nor read of recurrence in the pectoralis minor and do not consider its removal necessary, unless in exceptional cases. The neck should be dissected in all cases where there are palpable glands and explored in every case as high as bifuraction of the carotid, by raising the skin over the clavicle and passing the finger up into the triangle.

BACTERIÆMIA—ITS DIAGNOSIS; ITS DIAGNOSTIC AND PROGNOSTIC VALUE.

BY

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That micro-organisms can and do exist in the blood as in other tissues, during disease, is well known. It is, moreover, by no means a very recent nor unusual event to isolate such organisms from the blood either before or after death.

Literature dealing with the presence of bacteria in the blood is voluminous and I will make no effort to analyze it in any way. Let me point out that so long ago as 1885 Fraenkel and Simmonds, in Germany, and soon after Castellani, in Italy, isolated B. typhosus from the blood of a patient suffering from typhoid fever. Since then, and, indeed, before that time various workers in many countries have been successful in isolating many different organisms from the blood. Jochmann and Canon, Bertelsmann and Lenhartz, Lesieur and Busquet, and a host of other continental workers have published valuable articles upon technique and results. Of late years many bacteriologists in England and America have seriously taken up this examination as an aid to Clinical Medicine. Horder, Hecktoen, Libman and his associates, Duval and Lewis, are only a few of those who have put their results in print.

Notwithstanding, however, the work of these investigators and their results, the routine examination of the blood as a laboratory aid to clinical medicine, is, perhaps, not sufficiently made use of, or if it be attempted, is disappointing in its results.

When we consider the careful and painstaking manner in which pleuritic, ascitic, pericardiac and other body fluids are withdrawn for purposes of diagnosis, which, unfortunately, so often give negative results, and compare the proportional distress and discomfort of such removal with the safety and lack of distress or pain accompanying a well performed bedside blood culture, we are surprised at the apparent carelessness of the value of such examination. This attitude, I believe, is due largely to an incomplete appreciation on the part of the clinician, of the possibilities of such culture or ignorance of the simplicity of the methods. Perhaps, too, early trial with improper technique or a poorly selected class of cases has disappointed those who would use this aid to diagnosis.

It is essential, if the presence of bacteria in the blood is to be of diagnostic or prognostic value, that their presence be discovered and the nature of the organisms be differentiated. Evidently there is a large class of cases in which the question of micro-organisms is not thought of. There are also cases in which the near approach of an inevitable lethal termination withholds one from attempting such examination, merely for purposes of scientific interest, entailing as it does a small amount of disturbance and distress.

A proper selection of cases being made, namely, those cases in which the infective process is evident but the exact nature or extent is not understood, it is necessary that a technique be adopted which has proved itself of value.

During the past twenty years many methods of detection of bacteria in the blood have been suggested and adopted. Smears have been made in a manner similar to that made use of in searching for malarial and other parasites. In certain cases interesting results have been derived from such examination. McKenzie of Calcutta reported in 1905 a case of supposed sunstroke due to infection from a Gram positive coccus found in the blood in large numbers. The method of culture first adopted was that of carefully cleansing the lobe of the ear and, after pricking it, allowing a drop of blood to fall into the bouillon. Early the method of using a syringe became popular and the blood removed was defibrinated and inoculated in bouillon or agar. During the past few years various changes in the media, and appreciation of the needlessness of defibrination, have led to more constant results.

As some few, at least, of the details made use of by me are not described in the usual text books or monographs on technique, I will mention briefly, the method I am accustomed to employ. If fever be present, and rarely will organisms be isolated in afebrile conditions, the presence of bacteria will most easily be discovered during the periods of greatest elevation, or if in patients having chills, just before the maximum is reached. This appears only natural when we consider that in all probability, in these cases, the fever is merely a reaction induced by the presence of an invader, be it localized in a joint or gland or in the circulating blood.

The materials needed, in addition to culture media, which will be mentioned in some detail subsequently, are: a syringe made of glass having a capacity of 20 cc. to 30 cc., with a short rubber tube connecting the rigid needle with the rigid tube, thus facilitating the introduction of the former and allowing a certain amount of freedom of movement on the part of the patient; an alcohol lamp; materials for an ordinary surgical-wash-up, and a couple of sterile towels.

The media employed will vary with the suspected infection; in the event of such preconception being impossible a variety of media must be used. For general use when the pyogenic cocci are thought to be the exciting factor, six tubes holding about 15 cc. of fluid agar at 40° C., which has been prepared with 19 grams of agar to the litre and varying in acidity from .5 to 1.50 per cent., are used for the plating material. Several flasks of plain bouillon and litmus milk are also employed. A higher temperature than 11° C. for the agar will, in addition to injuring the organisms, cause serious injury to the blood agar as a culture medium. Glucose may be added to the agar and

bouillon with benefit. Litmus milk is of especial value in the growth of pneumococci.

When the question of B. typhosus is raised we have found results when using ox bile, modified after the manner of Coleman and Buxton, to be greatly superior to the methods of Castellani, Kühman and others using bouillon.

The formula of the medium as used by them is as follows:

Ox bile	90 parts
Glycerine	10 parts
Peptone	2 parts

This liquid is placed in flasks 20 to 30 cc. in each and sterilized by intermittent sterilization.

As in the blood of patients suffering from bacterial invasion there are usually present anti-bodies of varying powers, it is important that the dilution of the blood be such that the proportion of the substances be so small as to become inert, otherwise they will kill, or at least interfere with the growth of the organism present. The potency of such properties in blood withdrawn from patients suffering from typhoid fever is still a matter of some dispute, my own results, however, would suggest that the bactericidal powers are definite and that if growth with ordinary methods is to be accomplished the dilution must be large. In a case examined but a few weeks ago one bouillon flask was inoculated with .5 cc. of blood to the 50 cc. in the flask, after the other media were inoculated I attempted to inoculate similarly a second bouillon flask, I found, however, that the blood had clotted and I was only successful in injecting one drop of blood which was on the needle. At the end of twelve hours the later flask was turbid with a growth of typhoid organisms, whereas the other which had received more blood was clear. Bile has the property of withholding clotting of the blood and of destroying the bactericidal properties. We are able to add as much as four or five cc. of blood to every 20 cc. of bile; and, as to a certain extent, our chance of finding the bacilli varies directly with the amount of blood examined the comparative value of this method is obvious.

My own results with this media have been very successful. I have used it in eight cases of suspected typhoid. In order to test its proportionate value I have used six agar seeded plates and two flasks of bouillon, each holding from 50 to 100 cc., in each case, as well as two or three flasks of bile. In these cases a growth of B. typhosus was obtained in bile five times, in bouillon twice, and in agar plates only once.

I have also undertaken a series of experiments with this medium making use of several strains of paratyphoid, dysentery, colon and various cocci. My results have shown me that this medium is admirably adapted for growth of the various Gram negative bacilli mentioned and for staphylococci, but not for streptococci nor pneumococci.

Procedure.—A vein at the bend of the elbow is usually chosen as the most favourable site. In stout individuals and children these veins may be used even though not visible. The surrounding area of skin is carefully washed up with soap and water, alcoholic bichloride 1-500 or other antiseptic solution. The operator similarly washed up grasps the patient's arm with his left hand in such a manner that his fingers and thumb meet about the bend of the elbow. An assistant compresses the vein above the elbow while another hyperextends the forearm. The exact site of the distended vein being noted, this spot is fixed by pressure with the finger and thumb while the right hand holding the needle with the opening directed upward plunges it into the steadied portion of the vein. The plunger of the syringe is now slowly withdrawn, and if the lumen has been reached, the blood will flow in. About 8 to 15 cc. are withdrawn.

As the sterilization of the syringe under pressure in an autoclave is detrimental, it is found better to only occasionally make use of this method and to rely on boiling in plain water as a routine measure.

The various tubes and flasks are now inoculated and here it must be constantly borne in mind, that it is better to have one or two organisms in such an environment that they can multiply than large numbers in unsatisfactory surroundings. As a rule, amounts varying from .2 to 1 cc. into each 15 cc. of agar is sufficient, and a similar quantity into each 50 cc. of bouillon or milk. As mentioned above, more may be placed in media containing bile.

The media must be vigorously shaken after inoculation in order to prevent clotting and to insure even distribution of blood. Great care must be taken in the inoculation of the tubes and flasks that neither the media nor the blood flow become contaminated. Again, in the pouring of the plates careful technique is necessary if the results are to be satisfactory—a plate uncontaminated with air organisms, and it is only by the continued absence of such contamination that the development of colonies in the media can be concluded definitely as having come from the blood. The main source of contamination is the outer surface of the tube which is placed under cover of the Petrie dish in pouring. This danger is overcome by carefully rolling the tube through the flame of an alcohol lamp for a distance of 3 or 4 cm. from its open end.

When searching for the gonococcus, meningococcus and other organisms which are known only to grow in surface colonies, several drops of blood are placed upon the surface of the hardened plate and subsequently surface seeded with a platinum needle.

The inoculated media are now placed in the incubator at 37° C. for a varying length of time. B. typhosus, B. coli and similar organisms if in a favourable medium will have become definitely demonstrable in 12 hours, whereas glanders and some gonococci will require 48 to 72 hours. Anærobic cultures are best grown in a Novy jar or some similar method. As a rule, twenty-four hours is a favourable incubation period and if colonies are present they may be put through the various tests of staining and cultivation for their identification.

For the identification of typhoid, paratyphoid and other organisms in bile at the end of twelve hours the bile is planted in dextrose semisolid, lactose, mannit, saccharose and dextrose litmus serum waters and on plain agar. By this means at the end of six or twelve hours more the identification of these organisms is complete. The agglutination test with immune serum may also be used, this is the method made use of by Coleman and Buxton, but I consider the former simpler and more rapid.

Almost all our ordinary pathogenic and pyogenic organisms have been isolated by one observer or another. We find in the literature many reports of B. paratyphous and B. pyocyaneua, B. mallei, B. anthracis, B. mucosus capsulatis, streptothrix and other more unusual infections. We have been successful in isolating many, either before or after death, in our routine work.

It is impossible in a paper of this length to review carefully all the different diseases which are commonly suggesting difficulty in diagnosis and in which the finding of specific organisms in the blood is of value. Typhoid fever and puerperal infections are, I think, of as great interest as any other, and if I may make mention of cases in detail I will only refer to these two conditions.

For a comprehensive arrangement of experience in general bacterial infections with pneumococci, streptococci, various staphylococci and gonococci, I would commend Libman's article in the J. H. H. Bul., p. 184, 1906. Here, with a basis of about 700 blood cultures, he discusses fully several interesting conditions, especially acute endocarditis and bacteriæmia.

Typhoid fever is not always clear. The agglutination reaction as popularized by Widal usually does not occur till late in the disease, sometimes does not occur at all, and usually persists for a long time

after an attack. The organisms can in almost every case be isolated from the blood, so long as a definite fever continues, as a matter of fact more easily early than late. The presence of the organisms is absolutely undoubted evidence as to the cause. In this way, too, in the case of paracolon or paratyphoid infections the long and laborious course of multiple agglutinations is obviated.

During the past six months I have undertaken 33 bacteriological examinations of the blood of patients in the wards of the Montreal General Hospital. Only in those cases in which there was a reasonable hope that such examination might be of value, has it been attempted. In 13 cases bacteria were recovered. Table 1 describes the cases examined and the positive results with the nature of the organisms isolated.

TABLE 1.

NATURE OF CASES.	Number of cases	Num. of organisms	B. Typhosus	Streptococcus	Pneumococcus	Staphylococcus aureus
Suspected Typhoid.....	14	7	6	1	—	—
Suspected puerperal septicæmia	6	3	1	1	1	—
Acute C. S. meningitis	3	0	—	—	—	—
Acute lobar pneumonia.....	2	2	—	—	2	—
Acute endocarditis	4	0	—	—	—	—
Fractures osteomyelitis, etc....	4	6	—	—	—	—

*Both ultimately fatal.

In suspected typhoid cases the cultures were usually undertaken early in the disease before the Widal reaction appeared. Out of twelve cases six gave B. typhosus and one streptococcus pyogenes, thus altering the diagnosis. Two cases in which the organisms were not found were undoubtedly due to faulty technique, the proper media not being at hand. Two examinations were attempted after the fever had disappeared and were negative. One case later came to autopsy and proved not to be one of typhoid fever, nor apparently to have any septicæmia whatever. The remaining two cases never showed the agglutination reaction, ran short courses and were probably influenzal in origin.

In June, 1907, Coleman and Buxton reviewed and analyzed the literature dealing with the presence of B. typhosus in the blood of those suffering from typhoid fever. They report 123 of their own cases, and 1,602 from literature; 75 per cent. of 1,602 cases gave positive results. Many observers got results in 100 per cent. of cases, they too have had like results in 34 cases in which bile was used. They found that the case with which the bacillus is isolated varies with the time in the disease. During the first week these investigators found them in 89 per cent of the 1,602 cases. During the succeeding weeks they became

fewer in number till in the fourth week only 34 per cent. gave positive results. Only one observer claims to have isolated the organisms after fever had disappeared.

In 1904 Perquis, basing his conclusions upon his own experiments and the work of Castellani, Courmont, Lesieur, Hewlett and others, states that the organisms are almost always present in the blood in the early stages of typhoid fever and that the number of organisms bears no relationship to the agglutinative power of the blood. Perquis made use of the method of high dilutions in bouillon, claiming that the proportion of positive results varied with the dilution.

The three following cases representing cases showing difficulty of diagnosis in two, and a form of septicæmia, not usually reported in the third, occurred in my series.

Case I.—Mrs. C. G., aged 33, February 20, 1907. Patient sent to Montreal General Hospital ten days post partum. For six days she had high fever continuous in type. Cough before confinement. Temperature 103, pulse 112, regular and dicrotic. Tongue dry and brownish. Spleen easily palpable. No rose spots; white count 5,000. She was admitted to the medical wards under a provisional diagnosis of typhoid fever. A blood culture was at once taken, with the result that within eighteen hours a definite diagnosis was made of streptococcus septicæmia. Patient ran a septic course and developed arthritis of the knee. A blood culture on the 14th March showed streptococci still present in large numbers. A third culture on the 20th April showed organisms absent. Patient has since slowly progressed. This case, apart from the evident diagnostic value of the blood examination presents the commensal relationship between the host and parasite first suggested by Theobald Smith, whereby the latter may persist in spite of the gain in health of the patient.

Case II.—Mrs. T. B., aged 22. Patient admitted four days after a four months abortion under most trying circumstances. Complaints: fever, headache, slight chilliness, some abdominal pain, especially in the lower quadrants; pulse 124, temperature 104. No vomiting, no diarrhœa, no chills, no cough. No rose spots, spleen not palpable, no Widal, no Ehrlich, scant vaginal discharge, uterus enlarged and tender. The patient was curetted and a blood examination made. The result was the isolation of B. typhosus and the transfer of the patient to the medical wards.

Case three, though probably not uncommon, is rarely noted, due largely to the difficulty of differentiating the organism.

Case III.—Mrs. A. G., aged 35. Patient admitted three days after onset of symptoms of pelvic disturbance following the attempt to induce

abortion at six weeks by means of a piece of slippery elm bark. Upon admission every evidence of profound toxæmia and pelvic peritonitis. Uterus enlarged and tender, muco-purulent discharge giving a growth of pneumococci producing 2.2 per cent. acid in Inulin from .9 per cent. A blood culture gave practically this same organism producing 2.1 per cent. of acid. Death on the third day. Autopsy showed pneumococcus septicæmia, general peritonitis, septic endometritis, etc., no pulmonary lesion.

In searching for meningococci and gonococci my results have not been surprising. The organisms are occasionally found but their growth is unusual. Osteomyelitis and cases of multiple abscesses or so-called pyæmia, which by their very nature suggest a blood infection, are cases in which it is apparently difficult to detect the infecting organism. In these cases it is only by careful technique and repeated effort that they can be cleared up. In this class of cases, especially examination immediately before the moment of maximum temperature, is imperative if positive results are to be obtained.

Since June, 1906, careful and routine bacteriological examination of the blood from the heart and internal organs of practically all bodies coming to autopsy in the Montreal General Hospital within twenty-four hours of death, has been made. In this way up to August 1, 1907, 168 cases were examined and organisms isolated in 53. Those cases in which B. coli or other saprophytic organisms were found in the internal organs but not in the heart's blood are not recorded here.

Of the 168 cases examined, cases such as cardio-renal conditions, tumours, cerebral conditions and tuberculosis comprised 97. Of these only 7 gave positive results, these being mainly streptococci in tuberculous conditions and B. coli.

Table 2 roughly classifies the other 77 cases, in which organisms were isolated forty-six times, or in 60 per cent.

TABLE 2.

General peritonitis	14	6	43
Acute C. S. meningitis	13	1	7.5
Acute lobar pneumonia	10	9	90
Typhoid fever	7	7	100
Multiple abscesses	5	5	100
Post partum infections	3	3	100
Appendicitis, mastoiditis, etc.	9	3	33 1-3
Pyogenic infections, bones and soft tissues	13	11	84
Malignant endocarditis	2	1	50
	77	46	60

If cases of cerebro-spinal meningitis be excluded we have 64 cases with 45 organisms, or 70 per cent.

Table 3 gives the organisms found in the 46 positive cases:—

TABLE 3.

Streptococcus	14	In one case of Ac. lobar pneumonia. In puerperal cases and local infections.
Pneumococcus	9	Eight cases of pneumonia; one case of puerperal fever.
B. typhosus	7	In all cases of typhoid fever.
B. Coli	4	In two cases of general peritonitis. In two cases of pyæmia.
Staphylococcus aureus	4	In cases of so-called pyæmia.
" albus	4	
" citreus	1	
Gonococcus	1	In a case of acute endocarditis isolated from heart valve.
Meningococcus	1	
B. Aerogenes capsulatus	1	In a case of puerperal infection.

Since the preparation of this table I have isolated the pneumo bacillus of Friedlander from the blood of a patient dying with broncho-pneumonia.

I leave the results, as far as they go, to speak for themselves. Let me, however, point how, perhaps they may suggest that the knowledge of the presence of micro-organisms in the blood may be of definite prognostic as well as diagnostic value. In the first place the fact that these organisms have been isolated in such a large proportion—70 per cent.—of cases in which bacteria evidently were an important factor in the production of disease and in so few cases in which these agents were not considered instrumental in bringing about a fatal termination, although in both these series of cases alike, the intestinal canal was the habitat of innumerable streptococci and B. coli, suggests that their presence is of necessity rather than accident.

The results of the cases of typhoid fever corroborate statements made above concerning the almost general presence of the bacillus in the blood in this condition. Much discrepancy exists between the results obtained by continental writers and investigators in America regarding the presence of organisms in the blood of patients suffering from acute lobar pneumonia; the former claiming positive results in from 80 to 100 per cent. of cases, the latter, as a rule, being unable to isolate bacteria in more than 22 to 40 per cent. Ewing in 348 cases insolated pneumococci in 160 cases, of which 64 were fatal, whereas Procaska claims to have found them in all of fifty cases. Rosenow in 77 cases out of 83 cases. Pearce even at autopsy found the organism in only half of 118 cases. We find, as a rule, however, that investigators assert that cases which progress to a fatal termination show a bacteriæmia. I have not given any special attention to this disease, but my

results both before and after death, support the view that fatal cases at least, show organisms in the circulatory blood. The results in cases of multiple abscesses calls for greater care in technique if we are to be successful in cultivating the organisms in cases in which the symptoms suggest their presence.

The presence of micro-organisms especially the streptococcus pyogenes in the blood in 84 per cent. of cases in which clinically the cases were cellulitis of various parts, erysipelas, osteomyelitis and infected compound fractures, insinuates that the knowledge of such presence during life would very definitely point to a grave prognosis, and if our technique could be depended upon, the continued failure to isolate organisms would similarly favour the prognosis. Practically the same statements refer to the conditions of puerperal infection although we must bear in mind that some cases do recover even when the virulent streptococcus is in the blood. Leukhart reports 12 cases out of 190 examined with 8 deaths. Gonnet with a large number of cases reports streptococcus in six, all of which were fatal. Indeed, we have reports of almost every infecting organism being found in the blood of cases which ultimately recovered. Even septicæmia with B. anthracis may not be fatal, as in the case reported by Duval and Lewis in 1905.

Let me close this desultory discussion of a large subject by a few conclusions.

1. The isolation of organisms from the blood though simple demands careful technique and proper media.

2. In all cases of indefinite diagnosis in infective diseases blood cultures should be attempted.

3. Blood cultures, though somewhat more complicated than serum reactions, are more definite, and are positive at an earlier date.

4. In many diseases the presence and persistence of bacteria in the blood is of definite prognostic value.

THE IRRITABLE HEART.

BY

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In the pathology of the heart structural changes have not received too much attention in the past, but disturbances of function have been too often disregarded. We know now with reasonable certainty that the heart muscle possesses the various properties of stimulus production, excitability, conductivity, contractility and tonicity. The diagnosis of

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a cardiac disorder is scarcely complete until we have considered whether or not each of these properties is normal.

A recognition of structural alteration is of value in proportion as it enables us to estimate the ability of the heart to perform its functions. A valvular lesion is important because it may lead through fatigue to loss of tonicity and ultimately to failure of contractility.

A degeneration of the myocardium is to be considered in its effects on these and other properties of the heart muscle.

Of the properties which characterize heart muscle stimulus production and excitability are so related to each other that they cannot always be separated. If the heart is beating too frequently we cannot always say whether the excitability or the stimulus production is the property which is increased above the normal. In speaking of the irritable heart therefore, we must for the present include not only cases in which the excitability of the heart is too great, but also those in which the heart is being too powerfully stimulated.

The signs and symptoms which are more or less characteristic of the irritable heart, are palpitation, consciousness of the heart's action, frequency or increased amplitude of the heart beat, diffuse apex beat, epigastric pulsation and dilatation the result of fatigue.

In cases where several of the above mentioned symptoms and signs are present, the possible causes should be enquired into. They may all, I think, be included under three heads:

1. Causes acting mechanically to increase the work of the heart, such as, distended stomach, lifting heavy weights, athletic overstrain.

2. Causes which impair the nutrition of the heart, such as, anæmia, too rapid growth, the debility following exhausting fevers.

3. Causes which affect the heart through the nerve paths controlling its rhythm and excitability, or, to use modern phraseology, the chronotropic and bathmotropic nerves. Such causes are, powerful emotions, tobacco poisoning, and abnormalities of the thyroid glands.

The generalizations I propose to make in this paper will be based on a consideration of about forty cases, of which I have in my possession written notes, and as many more which I have seen and examined but have not recorded on paper. Only a few cases, however, can be reported individually on account of space.

During the winter of 1900-1901 I examined candidates for the gymnasium of the city Young Men's Christian Association. The first evening ten candidates presented themselves, of which three showed disorders or abnormalities of the heart, illustrating some of the causes referred to above.

Case I.—A young man who had played hockey for six winters. Apex beat very pronounced; heart dulness to beyond nipple line. Pulse 60. No cause could be discovered for the enlargement of the heart except the excitement and strain attending the game of hockey.

Case II.—Had an attack of typhoid fever the preceding summer; did some hard bicycle riding soon after. The heart lifted a large area of the chest with each beat; dulness was increased, from 1 in. to right of mid-sternal line to nipple line; pulmonary second accentuated. Pulse 85 sitting, 110 standing. The typhoid fever and the hard bicycle riding probably both contributed to the production of his enlarged heart and frequent pulse.

Case III.—Aged 20; height 6 ft. 2 in.; pulse 72. Heart enlarged to nipple line. No cause could be elicited unless it was due to the weakness resulting from too rapid growth.

The following case from private practice seems to have resulted from over-exertion:

Case IV.—Married man, aged 30. Had not felt well since nine months before when he rode seventy miles in one day on a bicycle. He was not in proper training, as he had not ridden at all for a year previously. The fact that he smoked rather much may have had some bearing on the case also. His pulse on two examinations was found to be 100 and 120 per minute. Apex beat diffuse; heart dulness slightly enlarged. In two weeks his pulse came down to 72 and his apex beat and heart dulness became normal. The only treatment was abstinence from tobacco and a mixture containing ammonium bromide and digitalis.

The next case represents a more advanced stage of the so-called athletic heart.

Case V.—Man of 45, unmarried; first seen October 21st, 1900, in the evening. He was sitting up in bed with marked dyspnœa and complained of pain in the epigastrium; he had had similar attacks before but not so severe. He ascribed the present one to fatigue from walking too far during the day. He had been a heavy smoker till a month before when he had given it up; he had felt worse since. He had had rheumatic pains at times, but no definite attack of rheumatic fever. He had been one of the best known local athletes in his youth, his greatest forte being snowshoe racing. His pulse was fluttering, irregular and uncountable. The heart beat could be distinctly seen through the night shirt; apex beat visible and palpable over a large area. Heart estimated to be beating considerably over 150 per minute, but the beat was too frequent to count. Slight œdema of the lower extremities. The more alarming symptoms passed off with a night's rest and the hypodermic injection of 1-50th gr. of atropine.

The next day the following notes were taken: "Feels fairly easy. Arteries sclerosed. Pulse 108, very irregular. Heart dulness vertical from the middle of the 4th rib, transverse six inches from ½ inch outside right sternal border to 1 inch beyond nipple line. Heart sounds sharp in quality; an occasional rough murmur heard."

In a few days he improved sufficiently to get about. Seven months later the transverse dulness was 5½ inches; heart rhythm irregular, rate 108 per minute. Only 65 or 70 beats could be felt at the wrist, the others being too weak to be felt. A year later his heart dulness was sometimes about normal but varied in a very remarkable way from 2½ to 4½ inches, according to the state of fatigue. Heart beat forcible and extensive; no murmurs. Pulse when quiet 75, irregular. He was kept on moderate doses of digitalis, about half an ounce of the infusion a day, for a long time, and required medical attention less and less. His urine was examined at various times and found normal. One note of his urine read: "Clear, acid, 1016, no albumin, no sugar." I have not seen him lately, but hear that he is getting along very well and attending to business. If his heart gets troublesome he takes digitalis or suprarenal extract. It is now about seven years since I first saw him.

I fancy we have here to do with a heart injured by athletic and, perhaps, other excesses. One of his sisters has sclerosed arteries and a moderate degree of cardiac hypertrophy. He probably had similar tendencies which made his heart unable to stand the strain put upon it by his numerous hardly contested races.

Among the most interesting examples of irritable heart are those that declare themselves under the influence of abnormalities of nervous control. The case which made the most lasting impression on my mind as an example of the emotional heart, and which first directed my thoughts to the questions discussed in this paper, is unfortunately one of which I have only a page or two of imperfect notes, although I had her under observation for some years.

Case VI.—Unmarried woman, about 33 years of age, first seen in October, 1905. Complained of swelling of feet and palpitation of heart. Heart first became troublesome after death of mother a couple of years before. Patient grieved deeply and long for her mother and was also much troubled over other family matters. She seemed to possess an unusual capacity for mental anguish. Pulse 80, of small volume. Apex beat exaggerated and a little outside nipple line. No murmurs. Moderate œdema of feet. During the few years succeeding my first visit she continued to worry and grieve over her mother and also over her estrangement from her only brother. She frequently had a feeling

of a lump in her throat and suffered with palpitation of the heart. In the summer she was troubled with burning of the feet. Her condition changed very little and her symptoms did not improve. About six years after I first saw her I was summoned to her house one day and found her unconscious, pulse scarcely palpable, heart sounds very feeble. She did not respond to stimulation and died in a few hours without regaining consciousness. There was no post mortem, so the exact cause of death must remain a mystery. Whatever other causes were at work, however, I felt convinced that the emotional strain had played a prominent part.

Case VII.—A young woman came complaining of numbness in the feet and legs lasting about a year. Symptoms corresponded in time with a period of great mental distress. Patient said she had a trembling feeling in the chest and noticed her heart thumping, especially when lying on left side. Frequent micturition; pulse 108; heart enlarged outwards about two inches; beat weak and rapid.

Case VIII.—Widow, aged 72, complains of dyspnœa in early morning. Has always been emotional; heart easily excited. Has been much upset lately by marriage of daughter and family disagreements. Pulse 144. Heart greatly enlarged; transverse dulness 7 inches. Right ventricle enlarged, as shown by retraction of large area with each systole. Apex beat can be felt, not at lower border of heart, but considerably higher up. No abnormal sounds. Under rest in bed, digitalis and adrenalin, the pulse came down to 70 and the heart dulness nearly to normal in a few weeks.

Case IX.—Medical student, aged 21; family and financial worry for several years. Moderate smoker. No history of over-exertion. Suffers with palpitation, especially in evening; feels heart beating rapidly at night. Digestion good. Pulse regular, low pressure, 105 per min. Patient says he feels his heart drop a beat sometimes. Apex beat diffuse. Heart slightly enlarged; transverse dulness left of sternum to ½ inch inside nipple. Sounds sharp and distinct; pulmonary second exaggerated. Ordered ammonium bromide and digitalis. In two weeks pulse was down to 70 and symptoms were relieved.

In the next case tobacco poisoning seemed the essential cause of the disorder, and in the two succeeding ones it probably played a part.

Case X.—Cabman, aged 30; complained of indigestion; feeling of distension; weak and smothering feelings; palpitation of heart; constipation; frequent micturition. Indigestion had been present for two years. Patient admitted heavy smoking and chewing. Pulse 109, full and hard. Apex beat not pronounced, but epigastric pulsation very

marked. Heart dulness mid-sternum to nipple line; sounds sharp; no murmurs. No dilatation of stomach detected on palpation or percussion. Urine 1005, no albumin or sugar. Ordered 15 minims of laudanum three times daily. A week later the pulse was down from 109 to 75 and the heart dulness was diminished nearly to normal. Very little tobacco had been consumed in the interval. Laudanum discontinued and ammonium bromide and digitalis ordered. Two months later the pulse was 80 and the heart normal in size.

Case XI.—Unmarried man of 28; clerk in china store. Nervous; uneasy feeling about heart since a mental shock ten days before. Has always been muscular and has at times done heavy lifting in connexion with work. Anæmic, costive, a heavy smoker at times. Appetite usually good, but has suffered lately with indigestion. Teeth good; no history of rheumatism. Has had scarlatina. Pulse 85. Apex beat diffuse; dulness to nipple line sounds normal. Ammonium bromide and digitalis. Three weeks later the pulse was 72 and the heart normal. Five months later smoking to excess. Pulse 76, apex beat exaggerated as before, but heart dulness normal. Ordered Fowler's solution, potassium iodide and digitalis. A month later pulse 85; apex beat not visible; dulness normal.

Case XII.—Young man of 19; complains of heavy feeling about heart for about nine months, worse lately. No history of rheumatism or mental distress. Has done some hard bicycling. Smokes a good deal; began smoking cigarettes when 12 or 13, now smokes a pipe, averages 4 or 5 pipefuls of Old Chum daily. Complains of shortness of breath and has the gasping respirations characteristic of tobacco poisoning. Feels as if there was an obstruction to his breathing. Pulse 84 per minute and full in quality. Apex beat not visible but well marked on palpation in nipple line showing some cardiac enlargement; vertical dulness from upper border of sixth rib, transverse from ½ inch to right of sternal border to nipple line. Sounds sharp; no murmurs. Blood pressure 118 to 125 on different estimations. Ordered ammonium bromide and digitalis. In two weeks he was seen for the second and last time and his condition was about the same, there was certainly no definite improvement.

The next few cases illustrate the association of irritable heart with enlarged thyroid.

Case XIII.—Young woman of 24, unmarried; complains of a swelling in neck which has been noticed for about a year. Thyroid found moderately enlarged, especially the right lobe. No tremors or exophthalmos; no history of fright. Heart often palpitates, especially for

past six months. Menstrual flow has diminished recently from four days to two days. The thyroid enlargement is thought to be more noticeable at these times. Hands and feet are sometimes felt to be swollen at time of periods; finger nails sometimes turn blue and extremities get cold. Patient complains of feeling nervous; mother and sister have both had enlarged thyroids. Patient noticed nervousness and palpitation of heart before swelling in neck. Heart beat is so pronounced that it may be distinctly seen and felt through underflannel. Heart not noticeably enlarged; no murmurs; pulmonary second exaggerated.

Two years later; patient married and pregnant about six months. Apex beat exaggerated; heart dulness increased outwards about two inches; no murmurs; pulmonary second exaggerated. She was confined in due time in a country town and I was told she made an excellent recovery from her puerperium.

Case XIV.—Young man of 24; has had several weeks of severe financial worry; feeling weak and short of breath for about three weeks; occasional headaches; bowels costive. Pulse 96; heart slightly enlarged. Heart beat visible and shows systolic retraction of precordium one inch outside outer limit of dulness. Heart sounds clear; pulmonary second exaggerated; no murmurs. Vessels of neck show undue throbbing. Both lobes of thyroid moderately enlarged.

Case XV.—Young woman of 21, unmarried; complains of burning pains in feet, palpitation of heart, swelling of neck. History of worry about love affair, commencing a little before symptoms complained of and continuing up to present. Feels nervous; pulse 132; no tremor, exophthalmos, or von Grafe. Apex beat exaggerated, heart dulness normal; no epigastric pulsation; thyroid gland moderately enlarged. Prescribed medicine which patient did not take, but shortly afterwards a reconciliation took place between her and her lover and the symptoms soon began to subside. Two months later, however, the thyroid was still a little enlarged and her pulse was 96, but the subjective symptoms were gone.

A critical review recently published by Cheinisse[1] in *La Semaine Médicale,* deals with some of the problems under discussion. He draws attention to the fact that there has recently been a three-fold increase in the number of candidates for the Swiss Army rejected on account of heart affections. This fact has been ascribed to the wave of athleticism which has spread over Continental countries in recent years. He quotes a number of authors who have pointed out the deleterious effects on the heart of injudicious indulgence in athletics during the period of

growth. He considers it well established that excessive muscular work can produce chronic affections of the heart, but believes that the possibility of acute dilatation of the heart being produced in this way is open to question. He quotes authorities for and against. Those who have used the old methods of inspection and percussion as criteria, believe that acute dilatation may be brought about by physical strain, but the majority of those who have made use of X-Rays to determine the size of the heart will not admit that this is the case. The author of the review seems to favour the conclusions of the latter group, but to the present writer their subjects seem to have been poorly chosen, being trained athletes in whom the heart would naturally be able to adapt itself to sudden strain. Moreover, the use of the X-Rays itself may not be as free from practical fallacies as it is sound theoretically.

In any case the reviewer tells us that there is no reasonable doubt as to emotional causes being able to bring about acute dilatation. One case is given of a young man in whom acute heart symptoms with dilatation were caused on several separate occasions when he attempted to fight a student's duel. Two cases are given of acute dilatation of the heart among those who had to witness the horrors of the recent massacres of Jews at Odessa. In all these cases the dilatation was of short duration, lasting only a few hours.

A valuable storehouse of suggestion on the subject of emotional disturbances of the heart is to be found in one of our great English classics, Burton's "Anatomy of Melancholy." He describes the symptoms, for instance, of "Maids', Nuns' and Widows' Melancholy," as follows: "The most ordinary symptoms be these, pulsatio juxta dorsum, a beating about the back which is almost perpetual, the skin is many times rough, squalid, especially as Aretæus observes, about the arms, knees and knuckles. The midriff and heartstrings do burn and beat fearfully and when this vapour or fume is stirred flieth upward, the heart itself beats, is sore grieved and faints. . . . They complain, many times, says Mercatus, of a great pain in their heads, about their hearts and hypochondries, and so likewise in their breasts, which are often sore." Among the cures of this complaint Burton recommends: "Sparing diet, plebotomy and physic, but the best and surest remedy of all is to see them well placed and married to good husbands in due time." [2]

I can recall at least one case in my own practice where enforced continence in a married woman seemed to be the chief cause of severe palpitation, and I heard later that the continence and the palpitation came to an end about the same time.

A recognition of the cause of an irritable heart may usually be attained after a careful consideration of the history, the habits, the physical signs and the symptoms. The athletic proclivities of the individual must be carefully enquired into. Cardiac pain and flatulence should excite suspicion of tobacco poisoning, although the cause will frequently be found to be unsound teeth. The presence of sighing or gasping respiration in a man is almost pathognomonic of tobacco poisoning, as pointed out by the writer elsewhere.[3] This is especially true if there be a subjective complaint that the air cannot be drawn into the chest. A history of emotional shock and enlargement of the thyroid gland are frequently found together. It is sometimes difficult to decide which is the primary cause and which secondary. An interesting point I have noticed in cases of enlarged thyroid is that in the jugular pulse the systolic wave is usually higher than normal, rising above the auricular wave. I fancy this is to be explained by the arterial pulse being transmitted through the dilated capillaries of the gland to the veins.

With regard to treatment it is of first importance to remove the cause whatever it may be, if it can be determined. Rest to the heart is desirable, and to attain this we may have to order physical rest, or we may have to devise some plan for promoting mental and emotional rest, which is not so easy. Of direct medication I have had excellent results in the athletic heart from ammonium bromide and digitalis. In the tobacco heart I have been led by theoretical considerations to employ preparations of opium, and I think I have seen decided benefit result. I have used both laudanum and codeine for this purpose, but for obvious reasons these drugs must only be used after due consideration and must not be continued too long, especially the former. In the emotional and thyroid hearts I have had the best results in relieving symptoms from thyroid gland tablets. The administration of iodothyrin is said by Cyon[4] to slow the heart and lower the blood pressure. Numerous authors claim to have seen benefit from it in certain forms of goitre, although in other forms it seems to do harm. The best way is to try it carefully and observe the effect. I have been much impressed by the testimony of patients that it has a marvellous effect in calming their nervous feelings. In some cases I have seen the heart improve during its adminstration, and in some cases I have been disappointed.

To slow the heart and improve its tone in these cases I have used both digitalis and suprarenal tablets. I have seen some excellent results from suprarenals and also some failures. My personal conviction

is that we have not yet learned the proper dose of suprarenal by the mouth. I fancy an effective dose will be found to be twelve or fifteen two-grain tablets a day or a couple of drams of the 1.1000 solution of the active principle. If the administration be hypodermic 10 minims of the 1.1000 solution every two hours is probably about the maximum dosage.

These cases of irritable heart offer many interesting questions for consideration and in some cases for experiment. Can we have a diffuse apex beat without dilatation of the heart? How are we to explain its presence when the heart dulness is not increased? What is the meaning of epigastric pulsation? Can we always distinguish that due to the right ventricle from that due to the abdominal aorta by systolic retraction in the former case? Why do we sometimes get systolic retraction of the precordium without epigastric pulsation? What is the meaning of marked throbbing in the neck without corresponding fulness of the radial pulse? Does it indicate dilatation of special vascular areas in the neck, perhaps the vessels of the thyroid gland? Is not the pulsation observed in the neck venous more frequently than is usually supposed? Where the neck has been throbbing violently and I have taken a tracing I have sometimes obtained the tracing characteristic of the venous pulse when I expected it to be arterial.

Many of these questions I must leave unanswered from lack of a sufficiency of observations to settle them to my satisfaction. I shall be grateful for any light that may be thrown upon them and on some future occasion I may return to some of them again.

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HYPERTROPHY OF THE PROSTATE.—SUPRAPUBIC PROSTATECTOMY, WITH REPORT OF A CASE.

BY

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In order to appreciate the details of an operation for removal of an hypertrophied prostate by enucleation it is necessary to be familiar with the anatomical structures immediately concerned in it and their rela-

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tions. You will therefore pardon me if I briefly review these, before taking up the subject proper of my paper.

The prostatic gland is situated at the neck of the bladder. It has above it the symphysis and it rests on the rectum in front of the second and third segments of that viscus. In front of it is the triangular ligaments against which its apex rests: its base is directed upwards and backwards towards the bladder. In shape it resembles a horse chestnut and measures 1½ inches across its widest part: 1¼ inches from before backwards, and ¾ inch in thickness.

Text books on anatomy teach us that it is a single organ with the urethra traversing it from behind forwards. Embryologists tell us that until the fourth month of fœtal life the gland is formed of two distinct organs, and that at this period the two separate masses become agglutinated, except in the region of the urethra which it embraces; and that these two sections, although welded together, remain functionally separate and distinct in after life. Each mass has its gland ducts—12 or 20 in number—which discharge into the urethra on either side of the verumontanum. In function the two sections are as separate and distinct as are the two testes. In operating by the suprapubic route advantage is taken of these anatomical conditions by removing each section separately, so as to preserve the prostatic urethra uninjured and avoid subsequent stricture. It is very desirable that this part of the canal should be maintained intact if at all possible, although Moynihan of Leeds, and Freyer of London, remove the prostatic urethra without hesitation and no serious results follow.

The ejaculatory ducts should also receive attention. Their destruction may lead to impotence. They enter the two lateral masses from behind in their course to the urethra, where they end. These ducts should be preserved uninjured if at all possible, and so lessen the likelihood of the production of impotence.

The gland itself is formed histologically of glandular substance and a stroma of muscular (unstriped) and fibrous tissues. The glandular element is composed of follicular pouches and ducts. The enlarged prostate has two distinct capsules, viz. (1) inner or true capsule, (2) an outer or external capsule or sheath. The inner capsule or sheath is composed of unstriped muscular tissues intermingled with some fibrous tissues, this sheath sends numerous processes into the substance of the gland, which connect with a central collection of unstriped muscle which surrounds the urethra. The inner sheath is therefore firmly adherent to the substance proper of the gland. The external capsule is formed of the recto-vesical fascia. It does not cover the gland above.

These two capsules are held together loosely by a few bands of fibrous connective tissue. Imbedded in this loose tissue is the vesico-prostatic plexus of veins which sometimes gives rise to troublesome bleeding. There is therefore a line of cleavage between these two sheaths, and advantage is taken of this anatomical condition in the operation for complete enucleation of the gland.

An orange constitutes a rough illustration of the structure of the prostate, if we are to suppose that the edible part of the orange is formed of two vertical sections joined in the middle line. The strong fibrous tissue which joins and holds the two segments of the orange together, and which is closely connected with the pulp, represents the true capsule of the hypertrophied prostate, the two segments of the orange being represented by the two lobes. The rind of the orange represents the outer capsule known as the recto-vesical fascia.

In enlargement of the gland confined to the lateral lobes it is plain from these anatomical conditions that each lobe may be removed separately without inflicting any serious injury on the prostatic urethra. The enucleating finger may be inserted on either side of the urethra and shell the hypertrophied lobes out of their beds. When the outgrowth is in the centre of the organ the urethra is likely to be torn in the operation.

The condition known as "hypertrophy of the prostate" is incidental to old age. It is rarely met with under the age of 55, and it is said that 33 per cent. of the men who arrive at that age suffer from it, although in only 5 per cent. of cases it gives rise to any serious inconvenience.

The gland increases in size in the direction of least resistance, and that is upwards and backwards into the bladder. The external capsule is absent here. The tumour does not grow downwards and forwards to any appreciable extent because of the resistance offered by the external capsule and the triangular ligament. The effect of this upward tendency of the growth is to raise the internal meatus of the urethra on a level above the base of the bladder, and form a sac or pouch in that viscus behind the prostate, in which "residual urine" is retained. The amount of "residual urine" will depend on the size of the pouch. The prostatic urethra is at the same time greatly elongated and rendered very tortuous.

Type of tumours.—There are three types of tumours recognizable. (1) The large, soft prostate, (2) the small, hard prostate, and (3) the mixed variety. The type present depends upon which tissue is in excess. When the glandular elements predominate the growth is of

the large, soft variety, and when fibrous tissues are largely in excess, it is of the small, hard type. The enlarged, soft prostate is the one most favourable for prostatectomy, and the small, hard one the least. The reason of this is the line of cleavage between the two capsules is well defined and loose in the former, and hence the growth is easily shelled out from its bed, while in the latter the cleavage line is ill formed and the capsules are glued tightly together, so that enucleation is both dangerous and difficult.

Shape of tumour.—The gland may enlarge uniformly, or the growth may be limited to one of the lateral lobes, or the lateral lobes may be affected but very little, the enlargement being confined chiefly to the so-called middle lobe, which is merely an outgrowth from the centre of the prostate. Then again, there may be irregular outgrowths from the lobes.

The external capsule (recto-vesical fascia) does not meet above the gland and hence the tumour grows upwards in the space left between the reflections of this fascia, and insinuates itself between the vesical sphincter and the internal meatus of the urethra, and pushes aside the muscular fibres of the bladder, and produces a certain amount of atrophy of them, so that nothing is left to cover the outgrowth at this point except the mucous membrane of the bladder. In removing a prostatic tumour by the suprapubic route advantage is taken of these pathological conditions, as will be seen by the description of the operation.

Causation.—This is unknown, as in the case of other tumours. French surgeons hold that the condition is a local manifestation of a general or constitutional affection, which begins with a general arterial sclerosis, in which all the genito-urinary organs share. The result is a fibroid degeneration of the prostate (Guyon). This is very improbable.

Other eminent surgeons claim that it is inflammatory in origin and is always secondary to, and results from, posterior urethritis (Hunter, Virchow). It may be urged against this theory that the disease develops when the sexual function is on the wane and at a period when posterior urethritis is less likely to be present.

Then again, some surgeons maintain that these tumours are similar to uterine fibroids, and that both occur when sexual activity is on the wane (Virchow, Thompson, White). It is urged in support of this view that the utricle of the prostate is the analogue of the uterus; that in structure the prostate and uterus are alike; that there is a great similarity in structure, position, and mode of growth between the fibromyomata of the uterus and the hypertrophied prostate, and that the disease occurs in both cases when sexual function is on the wane.

In opposition to these views it is contended that the utricle, which is the analogue of the uterus, does not take any part in the prostatic growth, and that uterine tumours begin as fibro-myomata, whereas prostatic tumours originate as adenomata.

It is now generally admitted that the so-called "senile hypertrophy of the prostate" is chiefly if not wholly adenomatous in character.

The effect of enlargement of the prostate is obstructive dysuria. The amount of impediment to the flow of urine depends to some extent on the part of the gland involved, but it chiefly depends on the size of the tumour. In an outgrowth from the centre of the gland the amount of obstruction may be very serious, even when the lateral lobes are not markedly enlarged and when no very serious enlargement of the gland can be determined per rectum. The symptoms due to hypertrophy of the prostate are familiar to you all, and the pathological changes to which it gives rise in the bladder, ureters and kidneys are similar to those resulting from organic stricture of the urethra. They are cystitis, hypertrophy of bladder, distention of the bladder with atony, ureteritis with hypertrophy and distention of this canal, hydronephrosis, pyonephrosis and pyelonephritis.

The complications to be feared after prostatectomy, apart from septic infection are, stricture, orchitis and epididymitis, impotence, incontinence, and fistulæ—suprapubic, perineal and recto-urethral.

Stricture.—In the operation of prostatectomy a portion of the prostatic urethera is generally torn away and a scar forms in healing, and this scar may subsequently contract and give rise to an organic stricture. However, a stricture rarely follows if due care is exercised in the performance of the operation, and in conducting the after-treatment of the case. It is not a very common complication. This has been the experience of Moynihan of Leeds, and Freyer of London.

Epididymitis and Orchitis.—This occurs sometimes from infection transmitted from the prostatic site. The passing of a sound after removal of the drainage tube may bring on an attack. It is usually slight in degree, although in a few instances it has ended in the formation of an abscess.

Fistulæ.—These are not of frequent occurrence, especially the perineal and suprapubic varieties. Usually they arise from contraction of the anterior portion of the urethra (stricture). To guard again their occurrence the urethra must be kept well dilated in the after-treatment of the case. The recto-vesical fistula may result from a tear made in the rectal wall during the operation, or from subsequent sloughing of the parts, or from the pressure of a drainage tube or a tampon. It is

met with most frequently after the perineal prostatectomy, and especially in cases in which inflammatory or fibrotic changes have taken place in perineal structures.

Impotence.—This is a rare complication. It is supposed to be due to laceration and stricture of the ejaculatory ducts. It is more apt to follow operations for outgrowths from the centre of the gland, because here the danger of tearing the ejaculatory ducts is much greater than in operations upon the lateral lobes. Then again, it is more likely to result from operations on the small, hard prostate than on any of the other varieties. To guard against the complication care should be exercised in performing a suprapubic prostatectomy to preserve intact the ejaculatory ducts and the segment of the prostatic urethra in which they enter. This is not easily done when the tumour is situated in the middle of the gland or in the small, hard prostate. Horwitz says, that impotence may occur in cases in which the ejaculatory ducts are not injured, that it arises often from injury to the nerves supplying the parts. This complication is more likely to ensue in persons whose sexual vigor is on the wane or in abeyance. In such cases an operation may bring about sexual exhaustion. In operating on individuals whose sexual function is fairly vigorous, the surgeon should exercise care not to damage these ducts.

Urinary Incontinence.—An examination of 530 cases showed that incontinence occurred in 3½ cases. It may be present for two or three months after the operation and continue until the structures about the neck of the bladder regain their normal tone and vigor, after which the patient has complete control over micturition. Urinary incontinence may be due to various causes, *e.g.*, (1) hardened cicatrix of urethral wall leaving a patent tube, (2) damage to vesical neck and sphincter, (3) laceration of prostatic urethra and defective healing of same, (4) injury of external sphincter or compress or urethral muscle, (5) damage to nerves supplying the parts.

In a small proportion of cases some leakage persists indefinitely. It is, however, an infirmity of very little moment in comparison to the malady for which it has been substituted.

Treatment.—The treatment of enlargement of the prostate has heretofore been very unsatisfactory. As an evidence of this I need only mention the various make-shifts that have been resorted to in the vain hope of overcoming obstruction to the free flow of urine incidental to this disease. They were all operative in nature and were intended to reduce the size of the tumour and so remove the impediment to free micturition. In some instances the gland was attacked directly, as, for

instance, in Bottini's operation. This consisted in dividing the obstruction at the neck of the bladder by a concealed galvano-caustic knife or snaring it when pedunculated. Such proceedings are uncertain and not free from serious risks, and happily are not resorted to to-day. In other instances the gland was attacked indirectly, *e.g.*, castration and vasectomy. These abominations need only be mentioned to be condemned. They are fortunately not often resorted to now-a-day.

At the present moment the treatment of hypertrophy of the prostate is practically reduced to the use of the catheter and prostatectomy, which means enucleation of the whole gland.

Prostatectomy may be performed by one of two routes, viz. (*a*) The suprapubic route, (*b*) the perineal route. Then the perineal operation may be done by either a limited longitudinal median incision carried down to the capsule of the prostate, or through a free transversely curved incision through which the organ is fully exposed. The advantages claimed for the transverse incision is that enucleation is done largely under the guidance of the eye, whereas in the other two methods enucleation is effected by finger dissection unaided by the eye. I am not so sure that enucleation can be better performed under the guidance of the eye in these cases, than by finger dissection aided by the sense of touch only.

Each route has its advocates. The selection of methods and routes should not be a matter of indifference, or chance, or prejudice. That method should be selected which, in the opinion of the operator, is most likely to re-establish the ability of the individual to readily, fully and painlessly empty his bladder, and which at the same time is least dangerous to life.

In these operations we must expect a death rate of from 5 to 10 per cent. Permanent cure is obtained in about 68 per cent.; and in a large proportion of the remaining cases marked improvement has resulted to the obstructive symptoms,— the residual urine is lessened, the cystitis improves, the frequency of catheterization diminishes, and the passing of the catheter is much easier.

Prostatic dysuria once declared the question of contraindications to an operation of this magnitude has next to be considered. Under certain circumstances age contraindicates the operation, but age is a relative time. One person at eighty may stand an operation better than another at seventy. Septuagenarians and octogenarians often stand operations well. Advanced kidney disease and profound general prostration from prolonged suffering and loss of sleep are the chief contraindications to the operation. In these cases the surgeon should be

satisfied with palliative measures, such as the use of the catheter, drainage (perineal or suprapubic), bladder irrigation, urinary antiseptics, the removal of a stone, if one is present, and sedatives and general hygiene.

Prostatectomy is not an operation of emergency. This being so, measures should first be used to ensure the best state of bodily vigor. Sleep should be secured by sedatives, if necessary; the bowels should be regulated by suitable aperients and diet; the kidneys should be flushed by copious draughts of water; the skin should be acted upon by hot baths; the urine should be made antiseptic by giving urotropine grs. 10. or salol four times a day; and the mucous membrane of the bladder should be rendered aseptic by irrigation with mild antiseptics.

Suprapubic prostatectomy.—I perform the operation in the following manner:—The patient is prepared in the usual way, and the parts in the neighbourhood of the operation are sterilized thoroughly. The bladder is washed with a warm boracic lotion at a temperature of 103° F., until the return fluid is clean and clear and then ten or twelve ounces of the lotion is allowed to remain in.

An incision is now made in the median line immediately above the pubes 2½ inches to 3½ inches in length—in a thin subject 2½ inches; in a stout person, 3½ inches. The incision is at once carried down between the recti and pyromidalis muscles (linea alba), and through the transversalis fascia into the prevesical space, known as Retzius' space, which is filled up with fat. Care must here be exercised not to wound the fold of peritoneum which extends above from the fundus of the bladder to the parietal wall in front. This fold is seen in the upper angle of the wound. On inserting the finger in the lower angle of the wound the tense distended bladder is easily felt. The prevesical fat is now removed from the anterior surface of the bladder with the finger nail and it, together with the peritoneal reflexion already referred to, is drawn upwards out of the field of operation. This is easily done as the connexion between the bladder and peritoneum is quite loose. In doing this, however, care should be taken not to wound the plexus of veins which covers the anterior surface of the bladder in this region and so avoid troublesome hæmorrhage. The distended viscus will now be seen at the bottom of the wound, glistening and pale-white in colour. Two traction cords of silk are then inserted into the bladder wall, one on each side of the wound, to hold the viscus forward against the abdominal wall and steady it, and a vertical incision is made into it, an inch in length, between the two traction cords. If necessary this wound may be enlarged by inserting two fingers into it and tearing it apart, or by a knife or a pair of forceps. As the solution is flowing

out of the wound the index finger of the left hand is quickly inserted into it and the bladder is explored, if stones are present they are removed by forceps or scoop.

At this stage a rubber catheter is inserted in the bladder per urethram so as to determine the position of the internal urethral meatus and it is left *in situ*. This forms a landmark for the position of the prostatic urethra which should not, if possible, be torn in the operation. The gloved index and middle fingers of the left hand are now inserted into the rectum so as to steady the tumour and push it upwards and forwards against the index finger of the right hand, which does the enucleation. With the finger nail the mucous membrane covering the most prominent part of the hypertrophied prostate is scratched through until the internal capsule is reached (Figs. 1, 4), and the tip of the finger is then gently insinuated in the cleavage line between the internal and external prostatic capsules already referred to, and the growths is thus shelled out of its bed. In conducting this part of the operation the pulp of the finger should be kept closely against the gland in every position of the enucleating finger—in front, behind, underneath, and to the sides of the gland. By attending to these precautions the finger rarely leaves the cleavage line during the entire procedure, and the danger of injuring adjacent structures—the external capsule, rectum and urethra—and of subsequent extravasation of the urine, cellulitis, and other complications, is thus reduced to a minimum.

Normally, the sphincter is situated between the prostate and vesical mucosa. Sometimes this relation continues undisturbed, in which case the tumour is extra-vesical. More frequently, however, the gland as it enlarges insinuates itself between the sphincter and the internal meatus of the urethra, and projects into the bladder, constituting an intra-vesical enlargement (Fig. 2), this latter condition is especially suitable for the suprapubic operation. The prostatic tumour is removed in this operation through the space at the neck of the bladder which is uncovered by the recto-vesical fascia, and situated between the internal meatus of the urethra on the one hand and the sphincter vesicæ, and the muscular fibres of the bladder pushed aside and atrophied by the growth, on the other. The muscular fibres of the bladder and the sphincter grasp the finger tightly during the enucleation procedure. The enucleation being completed, the tumour is lifted up from its sac and removed from the bladder by a pair of forceps. The bladder is now irrigated with a hot saline solution at a temperature of 110° F., to rid it of blood clots, and at the same time check bleeding, which is sometimes quite free. However, irrigation should not be continued

longer than one or two minutes, as any longer time tends to encourage, rather than arrest hæmorrhage, by distending the prostatic sac and re-opening the sealed mouths of the vessels.

The bladder having thus been freed of blood clots a drainage tube of rubber is inserted in the suprapubic wound, extending about an inch inside the cavity of that viscus but no further. The tube should not rest on the base of the bladder, because if it does, it gives rise to pain and vesical tenesmus, and neither should the end of it enter the prostatic sac, as it would prevent it (sac) from contracting and so encourage bleeding and give rise to other complications, *e.g.*, recto-vesical and perineal fistulæ, and pelvic cellulitis. The lumen of the drainage tube should measure about ⅝ of an inch in diameter and have two openings in the vesical end of it, one on each side, and these openings should be entirely entra-vesical when the tube is in position. The reason the tube should be so large is to provide ample room for the free escape of blood clots.

Under proper treatment the prostatic cavity disappears very rapidly. This is due to the inherent elasticity of the recto-vesical fascia and to the contractibility of the surrounding muscles, and also to the pressure exerted by the pelvic structures generally. Its obliteration may be aided by gently manipulating the two opposing surfaces between the fingers in the bladder and rectum. For similar reasons extravasation of urine rarely occurs.

A few stitches of catgut may now be inserted in the angles of the vesical wound, but these are not always necessary as the bladder often contracts upon the tube without them. It is very desirable that all the urine should escape through the tube. To prevent blood and urine from accumulating in the prevesical space a strip of iodoform gauze should be packed loosely into it for twenty-four or forty-eight hours. This packing ought to be changed two or three times in the twenty-four hours. These precautions are necessary in order to prevent extravasation of urine and cellulitis. In my experience urine does not infiltrate into the tissues to any serious extent unless it is held under pressure. A few sutures of silk worm gut, deep enough to embrace the recti muscles, are then inserted in the upper and lower angles of the wound, which is afterwards covered with a dressing of double cyanide of zinc and plain, sterilized gauze, and the patient, to keep him dry, is enveloped—front, side and back—in a deep dressing of some absorbent material, *e.g.*, cotton wool or wood wool. Before withdrawing the catheter and applying the dressing, the bladder should be once more irrigated in order to remove all blood clots and to see that drainage is

free. The whole dressing is held in place by a many tailed bandage loosely applied.

The dressing should be changed when saturated with urine, every four or five hours, according to the amount of urine secreted. During the first twenty-four hours after the operation clots of blood usually form in the tube. These should be removed by a pair of long forceps at each dressing and thus secure free drainage and prevent over-distention of the bladder from backward pressure. That drainage should be free the first few days is very important, because the prostatic sac must be kept at rest and the blood clots which seal the mouths of the vessels must be left undisturbed, and thus obviate bleeding and facilitate healing.

In irrigating the bladder the lotion should flow into it and out again with little or no force, and so guard against increasing intra-vesical pressure and its evil effects upon the progress of the case. To accomplish this the irrigating pan is placed or held on a table on a level, a little above the patient's abdomen, so that the lotion may flow in and out of the patient's bladder without force. Irrigation should be done only once a day, unless the urine is foul, when it must be done twice a day. The surgeon himself should attend to this the first few days after the operation, as it is too important a matter to be entrusted to a nurse or even a house surgeon. Irrigation may be effected either through the abdominal wound or through a catheter in the urethra. This is a matter of choice. When done through the abdominal wound the nozzle of the syringe is inserted in the wound and the lotion returns on either side of the nozzle, and no increase in the intra-vesical pressure ensues. When the opening is so small that lotion cannot return in this way, the nozzle is withdrawn, and the lotion is allowed to escape before any serious increase in the intra-vesical pressure shall occur. The same precautions should be used as regards pressure when irrigation is performed per urethram.

Patients should not be allowed to void urine per urethram under ten or twelve days, as those who are not permitted to do so generally do better. They have better control over the act of the micturition and are less likely to be troubled with urinary incontinence.

The drainage tube should be left in for from three to five days. In thin subjects it may be removed in three days, but in stout persons it had better be left in for five days. By this time the track along the tube is usually covered with granulation tissues which prevent extravasation of urine and subsequent cellulitis occurring in the prevesical space. The suprapubic wound is now allowed to heal as fast as nature can do it by granulations, which will usually be in two or three weeks.

In connexion with the after-treatment of prostatectomy this important question arises: Should a catheter be retained in the bladder to maintain continuous drainage and to prevent the formation of an urethral stricture? This is one of the complications to be feared. Some surgeons favour the retention of the catheter. Its retention is, however, not necessary or desirable, even in cases in which the prostatic urethra has been badly lacerated, much less in those whose urethræ have not been much damaged. The catheter does not drain well, and it is not necessary to prevent stricture formation. Moynihan of Leeds, and Freyer of London, found no serious complications follow cases of severe laceration of this canal when treated without a catheter. For my own part, however, I see no objections to the passing of a catheter occasionally, with proper precautions, to irrigate the bladder and to ascertain the condition of the urethra, whether it is threatened with stricture or not.

The following case I have had in my practice in the autumn of 1906:—

R. D. F., age 67, was admitted to the Victoria General Hospital on 25th September, 1906, for hæmorrhoids. He always enjoyed good health until his present illness began and looked fairly well when he was admitted; appetite good; bowels inclined to be loose. He had suffered from bleeding piles off and on since ten years. His water bothered him for the last two or three years. He had to get up four or five times in the night to void urine, and had to strain a good deal in the act, and then he was able to void only a small quantity each time. He was unable to completely empty his bladder. In the mornings he could not urinate till he moved about some, and then the urine came away suddenly and he was unable to control it. Each morning he felt a swelling in the mesial line above the pelves, which disappeared after micturition. He had to strain hard to start and at urination, which brought the piles down. He came to the hospital to be treated for hæmorrhoids and not for bladder affection. The prostate gland was greatly enlarged and soft.

I removed the hæmorrhoids on the 9th of October with a ligature. While he was confined to bed after the operation, he suffered intensely with his water, so much so, that he had to be catheterized all the time, and, despite precautions, the urine became foul, which necessitated irrigation of the bladder twice a day.

I recommended an operation, to which he agreed. Prostatectomy was accordingly performed on the 22nd of October, 1906, by the suprapubic route. The operation was done and the after-treatment carried

out as already detailed. The bleeding did not amount to much during the operation, but there was a good deal of oozing from the bladder on the afternoon and night immediately following the operation. The bladder filled up with clots, which were removed by irrigation, and to stop the oozing, the prostatic sac was packed for ten or twelve hours with a strip of gauze saturated with adrenaline. The after-progress of the case was uneventful, and he was discharged well on the 29th day of November, five weeks after the operation.

He is now well and has complete control over his bladder, and can void urine without any discomfort, and does not have to get up at night to micturate.

Prostatic surgery has not been developed to any very great extent in this province. Up to the time of writing only two prostatectomies were performed in Nova Scotia, both recovered; but whether they were both successful I do not know. This depends on the operator's idea of success. My own case was the second one.

Since my return from London in August, 1904, I have been watching, in hospital and private practice, for cases suitable for operation, and, strange to say, I have met with only three or four, and of these only one submitted to an operation. In one case the attending physicians warned the patient, who was a clergyman, not to submit to an operation (prostatectomy) under any circumstances. It is needless to say he took his physician's advice. It was an excellent case for operation. I removed an outgrowth from the centre of the gland suprapubically, with a pair of forceps; it helped his condition a good deal. This was all he would agree to have done.

From what I have witnessed in prostatic surgery in the London hospitals, I am in favour of the suprapubic route, especially in the large, soft tumour, which is situated generally intra-vesical, and the case I had myself seems to confirm the opinion I then formed.

The perineal operation may be resorted to with advantage in the small, hard prostate, which is situated usually extra-vesical, and the whole proceedings may be conducted extra-vesically. Operations by this route are more apt to be followed by fistulæ—rectal and urethral—because of the close proximity of the rectum and urethra to the track of the operation (Fig. 3).

What symptoms call for operation? This is a large question which I do not propose to answer in this paper, which is far too long already. It seems to me, however, that an operation is impracticable on the first serious interference with the passage of urine. First, because the patient will not submit to it, and, secondly, he has no time to lie up.

This is the case, especially if catheterization does not give rise to any discomfort. However, the dangers of delay and of the use of the catheter—cystitis, ureteritis and nephritis—should always be impressed upon him. In my opinion an operation is indicated and should be recommended whenever obstruction is present to a degree which materially interferes with the comfort of the individual or entails marked disability.

THE VALUE OF BACTERIOGICAL EXAMINATION IN TREATING CONJUNCTIVITIS.

BY

HANFORD McKEE, B.A., M.D.

The vast majority of cases of conjunctivitis are due to bacteria. These infections, caused in one case by comparatively mild micro-organisms run a short, mild course. In others, the course may be a chronic, mild one, while still in others, permanent damage to the eye may be the result.

While the majority of cases of conjunctivitis are caused by micro-organisms, there is, nevertheless, quite a percentage in which no pathogenic micro-organisms can be found.

We divide conjunctivitis then into two great classes:

(I.) Where there is no bacterial cause.

(II.) Where there is a definite bacteriological factor.

In class I. we place those cases due to foreign bodies, smoke, rhinitis, gouty diathesis, errors of refraction, and as yet, trachoma, follicular conjunctivitis and spring catarrh.

In Class II. we have conjunctivitis due to the gonococcus, streptococcus, pneumococcus, Koch-Weeks bacillus, the diplo-bacillus of Morax-Axenfeld, the bacillus coli communis, the bacillus diphtheriæ, bacillus influenzæ, the micrococcus catarrhalis, the meningococcus, bacillus ozaenæ, Friedlander's bacillus, bacillus mucosus capsulatus.

This second group is a large one, and while conjunctivitis may be caused by any one of these bacteria, the common forms and those likely to be met with by us may be formed into a much smaller group.

In Axenfeld's clinic in Freiburg, in 900 cases of conjunctivitis examined with positive results

519 cases were due to the Morax-Axenfeld diplo-bacillus.
41 cases were due to the Koch-Weeks bacillus.
34 cases were due to the pneumococcus.
12 cases were due to the gonococcus.

In Gonin's clinic in Lausanne, of 310 cases.

185 were due to the diplo-bacillus of Morax-Axenfeld.

Read before the Canadian Medical Association, Montreal, September, 1907.

10 cases were due to the pneumococcus.
10 were due to the Koch-Weeks bacillus.
5 were due to the streptococcus.
83 were due to the staphylococcus.

Pollock in Aberdeen, in 361 cases found
189 due to the Kock-Weeks bacillus.
62 due to the Morax-Axenfeld diplobacillus.
9 due to the pneumococcus.
21 due to the gonococcus.

Meyerhoff in Egypt, in 304 cases found
157 due to the Koch-Weeks bacillus.
80 due to the gonococcus.
37 due to the diplo-bacillus of Morax-Axenfeld.
10 due to the pneumococcus.

Of 500 cases examined at the Montreal General Hospital
250 were due to the diplo-bacillus of Morax-Axenfeld.
13 were due to pneumococcus.
7 were due to the Koch-Weeks bacillus.
10 were due to the gonococcus.
3 were due to the bacillus influenzæ.

The chief factors then in causing conjunctivitis are the Morax-Axenfeld diplo-bacillus, the pneumococcus, the Koch-Weeks bacillus, and the gonococcus. These different forms, whilst in cases they have definite characteristic clinical features, in other cases the clinical signs may be very similar. To tell which of these forms we are dealing with, bacteriological methods are necessary. The technique of this examination is easy, and can be readily pursued in one's office. For routine work, the examination of a smear on a glass slide will give you satisfactory results. In Morax-Axenfeld and Koch-Weeks conjunctivitis the smear preparation will give you a positive diagnosis. In pneumococcus, gonococcus, and diphtheritic conjunctivitis, and where negative results are obtained, the inoculation of media is necessary.

Of the 365 cases examined by Gonin the prepared smear gave a positive diagnosis in 245. These figures show us of what real value the smear preparation is. In many cases you will find the pathogenic organism much more easily this way than by inoculating media. The pathogenic bacteria of the conjunctival sac are not easy to cultivate, and unless you have special media, at the proper reaction much of your bacteriological examination from cultures will be negative. With your smear preparation it is different. If the micro-organisms are present in the conjunctival sac, by smearing some of the discharge well over a glass slide and staining it, you will find the micro-organisms in quantity.

Of the different forms, the most common is the Morax-Axenfeld, which varies in its clinical picture, from a mild catarrhal to a severe purulent conjunctivitis, so that diagnosis must depend upon finding the bacteriological cause—the diplo-bacillus of Morax-Axenfeld. In many cases this form shows a characteristic clinical picture. It is a chronic form of conjunctivitis, and with proper treatment will last at least four weeks. That the diplo-bacillus may be a source of danger has been better recognized of late. In the past year many cases of severe ulceration of the cornea, due to the diplo-bacillus, have been reported.

In Koch-Weeks conjunctivitis we have our most contagious disease. We have a form of conjunctivitis which begins with one member of a family as a mild, acute conjunctivitis, and goes from one member to another, increasing in severity as it goes. It is a form which seems especially prone to occur in the spring and fall, and generally in epidemics.

The course of Koch-Weeks conjunctivitis varies, may be of three to four weeks duration. It seems to be more persistent in children than in adults.

Pneumococcus conjunctivitis is a form which favours northern climes, appears at the coldest seasons of the year, and is often associated with coryza. The clinical picture, as pointed out by Axenfeld varies greatly in severity. The inflammation may be slight and the disease run its course in a few days, or it may increase in severity, simulating a blennorrhœa. Slight, red rose œdema with purulent discharge, and intense swelling of the lids give this form of conjunctivitis a clinical picture differentiating it from any other form. A pseudo-membrane may develop. Blair, of Pittsburg, told me recently of a case of severe membranous conjunctivitis which he saw in consultation. Differentiation from diphtheritic conjunctivitis was made only by a bacteriological examination, which showed the cause to be pneumococcus infection.

In this more than in the other forms is the inoculation of media necessary. Pneumococci, although not found on your smear, may be found on the media.

About gonococcus conjunctivitis I have not much to say, except that, where a purulent conjunctivitis, or blennorrhœa neonatorum is due to the gonococcus, you have an infection which requires your best efforts to successfully combat.

But many cases of purulent ophthalmia and blennorrhœa neonatorum attributed to gonococcus infection, it is my belief are not due to that micro-organism, but to an organism which cannot be distinguished from it, except by careful examination, i.e., the micrococcus

catarrhalis, or the pseudo-gonococcus. I reported last spring six cases of purulent ophthalmia in the adult and infant, where the clinical picture and examination of the pus on a glass slide showed what was taken to be the gonococcus. The cases all ran a mild course of two or three days. Although the micro-organisms on the slides could not be distinguished from the gonococcus, on media it was easily seen that the organism was the micrococcus catarrhalis.

Why does one case of supposed gonorrhœal ophthalmia run such a mild course and the next such a severe one, when from the conjunctival discharge of each are found Gram-negative diplococci? Why? Because we have been dealing with different micro-organisms.

When you have conjunctivitis from such various causes, where the course and results are apt to be so varied and, perhaps so serious, to know what form you are about to treat must certainly precede treatment. Whether in acute epidemic conjunctivitis we have to deal with the Koch-Weeks bacillus, the cause of our most contagious disease, or with the pneumococcus or the bacillus influenzæ.

In catarrhal conjunctivitis, the examination will tell you whether the etiological factor is an organism or not. When the cause is the diplobacillus of Morax-Axenfeld, you are put in possession of valuable knowledge as regards treatment and duration of the disease.

When the finding is staphylococcus conjunctivitis we know we have a simple, non-contagious form. Negative findings have here a special value. They tell us to look to other remedial measures, such as refraction, treatment of the nose and throat, and systemic treatment.

In purulent conjunctivitis, bacteriological methods are, perhaps, of most value, for here are met virulent organisms.

The value of knowing whether your purulent discharge is due to the gonococcus, micrococcus catarrhalis, the Koch-Weeks bacillus, the diplobacillus, the bacillus coli communis, pneumococcus, bacillus subtilis, streptococcus, or staphylococcus, will readily be understood.

It is not enough to-day to put all the blennorrhœas due to the gonococcus. Of the 165 cases of blennorrhœa neonatorum examined by Morax, only 70 were due to the gonococcus.

In membranous conjunctivitis too, your treatment, especially antitoxine treatment must depend entirely upon the micro-organism present, whether it be the bacillus of diphtheria, the pneumococcus, or the streptococcus.

The clinical value of bacteriological methods consists in telling us to what micro-organism, if any, the conjunctivitis is due. To say no knowledge as regards the etiological factor is obtained from the clinical

picture goes too far. Morax-Axenfeld has often the clinical signs of angular and blepharo conjunctivitis. Koch-Weeks has, in the extreme pink hue, and pneumococcus conjunctivitis, with its red rose œdema and swelling of the lids, very definite characteristic clinical signs, while gonococcus conjunctivitis, with its well marked clinical picture needs no comment in this respect. As bacteriological methods give a definite diagnosis to the form of conjunctivitis and tell whether we have to deal with mild, or virulent micro-organisms, so they suggest the therapeutic measures necessary in each case. In cases of acute epidemic conjunctivitis if the etiological factor is found to be the Koch-Weeks bacillus, isolation of the patient may be necessary. And if the outbreak has occurred in schools, or where large numbers of persons are brought together, the closing of such institutions may be necessary. Koch-Weeks conjunctivitis is treated best by the application of weak solution of silver nitrate and cold compresses. Serious complications in this form are rare.

If the epidemic is due to the pneumococcus we have to deal with a more virulent micro-organism. Pneumococci in the conjunctival sac, unless energetically combated, may lead to serious ulceration of the cornea, or toxic iritis. When the epidemic is due to the bacillus influenzæ, the course will be a mild one.

In catarrhal conjunctivitis the most common bacteriological cause is the Morax-Axenfeld diplo-bacillus. This form of conjunctivitis may last for years. It is now recognized that diplo-bacilli may give rise to ulceration of the cornea, as serious in nature as the pneumococcus ulcus serpens. Morax-Axenfeld conjunctivitis is best treated with weak solutions of the sulphate of zinc. The way this agent acts on this infection is a nice feature in ophthalmic therapeutics.

When the catarrhal conjunctivitis is found to be due to other than bacterial causes, other measures are indicated. In membranous conjunctivitis, where the cause is the bacillus of diphtheria, serum therapy is the first indication. When due to the pneumococcus or the streptococcus, other methods are called for.

The picture of purulent ophthalmia from virulent and mild micro-organisms may be identically the same. Where the infection is caused by the gonococcus, treatment must be energetically and carefully carried out. If the streptococcus, or pneumococcus be the cause, similar energetic measures are necessary. When the micrococcus catarrhalis is the cause, ordinary methods only are indicated. If the staphylococcus, the bacillus coli communis, the bacillus subtilis, or any other comparatively mild micro-organisms are the factors at work, ordinary irrigation will

terminate a short, mild course. When the Koch-Weeks bacillus, or the diplo-bacillus of Morax-Axenfeld is the cause, measures already described will bring about satisfactory results. Bacteriological methods then tell us the cause of our conjunctivitis whether that be a bacteriological one or not. Bacteriological methods tell us what course the affection is likely to take, and what complications are liable to occur. They tell us what prophylaxis is necessary, what therapeutic measures are needed, and give us valuable knowledge to prognose with. The value of the bacteriological examination in treating conjunctivitis is, that it tells us exactly with what we have to deal and how to deal exactly with it.

The public health of Manitoba shows a marked improvement over recent years, especially in Winnipeg, where the general death rate has fallen from 21 per thousand of population in 1905 to 15.09 per thousand. Particularly gratifying is the change in the disgraceful figures for typhoid fever, the death rate in this disease having fallen in the last three years from 24.85 to 4.5 per 10,000 of population.

At a recent meeting of the Provincial Board of Health of Quebec it was decided to inaugurate in this province an annual conference of sanitary officers, in which all municipal boards of health are invited to take part. The first conference will be held at Three Rivers in June next.

Dr. John Considine of Port Dalhousie, Ont., died November 11th. last at the age of 88. He was born in Ireland, graduated at Trinity College, Dublin, and came to Canada nearly sixty years ago.

Twenty-two out of thirty-three candidates for admission to practice medicine in British Columbia successfully passed the provincial examinations last month.

THE

Montreal Medical Journal.

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PROTECTION FROM INFECTIOUS DISEASES.

From certain facts which have come to our notice lately, we are enabled to assure the public of Montreal, so careful is our Health Department, that there is scarcely any danger of their taking scarlatina—provided they have already had the disease. Not long ago a man arrived from Barre, Vermont, with a boy of sixteen years, who was actively desquamating after scarlet fever; he travelled hither by train and presented himself at one of the hospitals to have the boy taken in for the treatment of a corneal ulcer. Two competent physicians declared that the case was one of recent scarlet fever. The man was told what the disease was, and that the boy could be admitted to the Alexandra Hospital. He refused to go there, and was about to depart, when the physician said to him that he could not go freely into the city with an infectious disease, but must wait until the City Board of Health

was notified. The Health Office was called up by telephone, and the case explained to the man who answered the telephone. He listened to the statement, and said, "Let him go." "But," persisted the physician, "it is scarlet fever." And the answer came back, "He does not belong to Montreal. Let him go!" He was thereupon allowed to depart.

Doubtless these two people went straight to the nearest car-line and got on a car, and mingled with people who had no idea that they were elbow to elbow with an actively infectious case of scarlet fever. If it were not so dangerous, the whole affair is rather like a plot in a comic opera of the "Pinafore" type: Enter the hero, to be met by the doctor (Solo, "I see you are about to lose your skin!"); to which the father and son reply, (Duet, "For we had no means of knowing."). Presently, enter the officers of the law, and they are in this case just like stage-policemen: To the doctors recitative, "Seize that man!" they answer, in a rousing chorus, "We will not touch the scarlet boy, for he don't belong to us!"

Speaking perfectly seriously, we pay that official who answered the telephone for our protection, and he miserably fails in his duty. We do not know who answered the telephone, and we do not care; the Health Officer is responsible for that answer, as much as if he gave it himself. If he states that the man had no authority to speak in that way, then he should see that the man is discharged for assuming the authority If he replies, on the other hand, that it is not legal to report cases of infectious disease by telephone, we shall know that he is merely playing with the facts of the case. There is no excuse; we fail to even foresee that there can be an explanation.

If any one wishes to know the further facts of this case, we shall be glad to supply them; we hope the first person to apply for them will be the City Health Officer.

HOSPITALS FOR CONTAGIOUS DISEASES.

A deputation from the Alexandra and St. Paul's Contagious Diseases Hospitals waited on the Finance Committee, on October 28th, to urge that the hospitals be given increased grants by the city.

The following is the new agreement which the Council is asked to approve:—

"That the present contracts be modified, so that a supplementary subsidy of $5,000, be granted for the current year to each of the Alexandra and St. Paul Hospitals;

"That from the 1st of January, 1908, the annual subsidy to be paid to each of the said Alexandra and St. Paul Hospitals shall be increased by $10,000 for the next three years;

"The said hospitals agree to treat all patients without regard to religious denomination, who may be sent to them by the city, in such numbers as the said hospitals can accommodate, each accommodation nevertheless, not to be for less than one hundred patients a day;

"In case of an epidemic and when the city shall consider it necessary, it reserves the right to the exclusive use of all the pavilions for the treatment of cases of one contagious disease only;

"The city reserves the right to exercise an absolute control from the point of view of hygiene;

"The said hospitals shall agree to carry out the ambulance service at their own expense."

"The hospitals shall place twenty-five free beds at the city's disposal, instead of twenty beds as now."

The fact which stands out clearly is that the hospitals cannot be conducted on the present grant of $15,000 each, and that at least double this amount is required. This is the proper business of the city. The hospitals are merely acting as trustees, and should be relieved of financial cares at least.

A DEGREE IN ARTS.

At a meeting of physicians in the western district of Toronto, the following notice of motion was submitted: "That, in the opinion of this meeting it would be in the interests of the public; of those now in practice; and of all those who, in the future intend entering the profession of medicine, to have the standard of matriculation, a degree in arts." The question will come up for discussion in January. In Toronto University alone there are 630 students, and there is some probability that another medical school will be established in connexion with the Macmaster University. We have already pointed out the lack of sense which there is in duplicating the work already done in Toronto, especially in giving to medical education a denominational tinge. The modern movement is all in the direction of non-sectarianism, a higher standard, and a limitation of numbers. At McGill the course has been extended to five years, and with some diminution in numbers as a result. Next year Toronto will establish the five years' curriculum, and Laval has the question under advisement. A degree of preliminary education, such as indicated by a degree in Arts, is the next attainment to which medical schools must strive.

INCREASED FEES.

A meeting of physicians was held October 28th in Victoria Hospital, London, Ontario, when it was agreed by a unanimous vote to increase the fees. The resolution passed was as follows: "Resolved, that this representative meeting of the medical practitioners of the city of London find it necessary to increase the fees for professional services by an advance of the present current rates proportionate to the increased cost of living. It is felt that the public will recognize the reasonableness of this action, in view of the fact that the cost of living has been materially increasing for years."

As far as can be learned this means that visits will be two dollars instead of one dollar, as formerly. This resolution will not affect those poor who do not, under any circumstances, pay fees. In this respect the action of the physicians differs from the conduct of other bodies, who are as anxious for the dollar of the poor man as they are for the dollar of the rich. It is merely an effort on the part of the physicians to get back a part of what they pay.

It appears from the *Victoria Daily Colonist* of October 31st that there is, at least, one place in the world where a doctor is needed. The name of the place is Chilcoten. A despatch from Ashcroft says: "The condition at present is very hard indeed. When a doctor is urgently needed it is hardly worth while to face the 150 mile trip to get him. The distance is without telephone and telegraph communication, and even if it were so provided, there is a long journey for the doctor to make." It should not be hard to remedy this unusual condition of affairs.

There is a clause in the present Pharmacy Act which permits all druggists to demand an analysis of any sample of medicine put on the market, and this clause might well be put in operation. In Toronto a man of some sense was taken so violently ill immediately after eating a small yellow tablet which had been sent as a "sample" of medicine through the mails, that he required treatment in the hospital. Most of these samples are useless; some of them are dangerous.

An epidemic of typhoid is reported from Charlottetown, where thirty-five cases are now under treatment. The water supply appears to be above reproach. Indeed, a local paper describes it as "the best

in the world." Accordingly, suspicion has fallen upon the milk, and an additional sanitary officer has been appointed to investigate it.

Reviews and Notices of Books.

THE PRINCIPLES AND PRACTICE OF MODERN SURGERY. By ROSWELL PARK, M.D., Professor of Surgery in the University of Buffalo, N.Y. In one very handsome imperial octavo volume of 1,072 pages, with 722 engravings and 60 full-page plates in colours and monochrome. Cloth, $9.00, net; leather, $8.00, net. Lea Brothers & Co., Philadelphia and New York, 1907.

This new individual book is the successor of the "Surgery by American Authors," edited by Professor Park, which ran through three editions. His collaborators therein have most willingly placed their work and accompanying illustrations at his service. A perusal of the present book gives abundant evidence that the author has brought to bear the experience of many years as a teacher and surgeon in the presentation of his subject, and the result has been a book which is well balanced, as complete as space permits, and with all its information well interrelated and brought thoroughly up-to-date. Surgical pathology and the underlying principles of surgery are dealt with clearly and concisely, and at sufficient length to give one a good working knowledge of this important branch of the subject; while in describing surgical diseases in general and special or regional surgery, the desire has evidently been to give as complete a description as possible of the various conditions, while regarding treatment, he has confined himself to those procedures, operative and non-operative, which, in his opinion, have given the best results. We are thoroughly in accord with the plea of the author that the physician, surgeon, and pathologist should come into more intimate contact than at present, and that no better place for this union could be found than the public wards of a hospital. We believe such a union, properly constituted, would be of great benefit to one another and to mankind. W. L. B.

FRACTURES AND DISLOCATIONS. By LEWIS A. STIMSON, B.A., M.D., LL.D. Lea Brothers and Company, Philadelphia. 5th Edition.

The fifth edition of Stimson's well known book represents a certain improvement over former ones, especially in the addition of a considerable number of fine plates and skiagrams. The book, as a whole, is one of the best practical treatises on the subject in the English language.

It is difficult to particularize in a volume of this size, but one may refer to a few salient points. Stimson objects strongly to the modern tendency towards routine operation in simple fractures, which he characterizes as "uncritical." In a fracture involving a joint, if there is great deformity, he is in favour of open incision. If, after careful consideration, operation be undertaken, he advises waiting for subsidence of the swelling. He is against the early movements of joints in the neighbourhood of fractures. These should be left until union is complete. "Forcible passible motion is always harmful before the second month; even after that it is far more likely to do harm than good." He is possibly too conservative in some points, *e.g.*, in fracture of the calcaneum operative treatment is merely mentioned as a possibility. The pull of the tendo Achilles in producing deformity in this injury is hardly mentioned, nor is the tendency to pes planus. Treatment directed to obviate these possibilities is not discussed. The volume is evenly divided between fractures and dislocations; and the latter are excellently well handled, particularly from an anatomical standpoint. In addition to the classical Bigelow illustrations one finds a considerable number of very good ones original with the author. In a general way the book is valuable as being written in the *ex cathedra* style, and the magisterial tone is fully justified by the author's very large experience at the Hudson Street Hospital (House of Relief), and the New York Hospital. This enables him to speak from experience concerning the rare cases in this branch of medicine. The bibliographical portion is full, including not only the English, but also the foreign literature. The book is well balanced and is thoroughly to be recommended.

E. A.

Kirke's Handbook of Physiology: Revised and Rewritten. By Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Sixth American Edition. William Wood & Co., New York.

Kirke's Handbook of Physiology has always been a great favourite with students, and the present edition compares very favourably with its predecessors. We do not notice any great change in the general arrangement, but several chapters have been rewritten and the whole has been brought more or less up-to-date. We say more or less advisedly, because we could not help remarking serious omissions here and there. Reference is made to the internal secretion of the pancreas in a very indefinite way as having something to do with carbohydrate metabolism, but no mention is made of Cohnheim's well known theory that it increases the glycolytic ferment of the tissues. There is a similar haziness

about the account of the thyroid gland. The motor area of the brain is dismissed without reference to the recent work of Sherrington and Grünbaum limiting it to the parts in front of the fissure of Rolando. Where new work is incorporated into the book it is in some cases only partially assimilated. For instance, mucin is somewhat equivocally mentioned in its proper place as a glycoproteid and on the same page it is included among the albumoid substances where it has no business at all. The conductivity of heart muscle is referred to in connexion with the myogenic theory, but it is not included as it should be with rhythmiticity, tonicity and irritability among the fundamental properties of the heart muscle. Even contractility is not catagorically mentioned as one of these, although it is the most important of all. In spite of these peccadillos the work of revision has been well done, and "Kirke" will, no doubt, continue to be one of the popular text-books of physiology for a long time to come. W. S. M.

Manual of Disease of the Eye. By Charles H. May. Fifth Edition, Revised; with 362 original illustrations, 22 plates, and 63 coloured figures. Price, $2.00. Wm. Wood & Co., New York, 1907.

The appearance of the fifth edition of this work within seven years of the publication of the first shows that it has filled a want. The first edition we found fault with, but this one shows most marked improvement. It is really a very useful book on diseases of the eye for the general student. The very good illustrations which abound will be of great help to the beginner. The coloured plates are especially to be commended for their clearness. Each section is preceded by a clear and concise description of the anatomy and physiology of the special tissues under consideration. The bacteriology of the eye, however, receives scant attention, the importance of which in conjunctivitis and ulcers of the cornea is but touched on. The book is to be commended to the beginner in the study of ophthalmology. J. W. S.

A Text-Book of Pathology. By Francis Delafield, M.A., LL.D., Columbia University, New York; and T. Mitchell Prudden, M.D., LL.D., Columbia University, New York. English Edition, with thirteen full page plates and six hundred and fifty illustrations in the text, in black and colours. New York: William Wood and Company, 1907.

It is only three years since we had the pleasure of reviewing the seventh edition of this valuable book, and the fact that the eighth edition has now appeared is an excellent commentary upon the popularity

of the work. This, like the last edition, is in the hands of Professor Prudden alone, who has introduced considerable change in many ways. Some of the old illustrations are removed, and others substituted, and a hundred or more new ones are added; the freer use of colour in the ordinary illustrations is a distinct advance. We need not do more than say that the present edition of this valuable work seems to be an improvement on the last, which will be sufficient recommendation to any one who knows the book, or is interested in pathological text-books in the English language.

MERCK'S 1907 INDEX. (Third Edition). An Encyclopædia for the Chemist, Pharmacist and Physician of the Chemicals and Drugs used in Chemistry Medicine and the Arts. Merck & Co., New York, 15 University Place.

The third edition of this useful book of reference, like its predecessors, is a compend of all that one wants to know about any drug. Its 472 pages really contain an astonishing amount of information, which is necessarily abbreviated to the utmost; it gives the names, synonyms, sources and origins of drugs; all their most important physical and chemical qualities, their uses, doses, and modes of application, incompatibles, antidotes, etc., and finally an estimate of their relative values, which is not in any sense a price list, but enables one to see at a glance the approximate cost of the chemical product he desires. The index does credit to the reliability of this well-known firm.

DISORDERS OF RESPIRATION AND CIRCULATION; SYMPTOMATOLOGY AND DIAGNOSIS. A Series of Monographs by PROF. DR. EDMUND VON NEUSSER, Professor of the Second Medical Clinic, Vienna. Authorized English Translation, by ANDREW MACFARLANE, M.D. Part I, Dyspnœa and Cyanosis. E. B. Treat & Company, New York, 1907.

This series of monographs is of much the same nature as those by von Noorden upon Disorders of Metabolism and Nutrition, published also by E. B. Treat & Company. These monographs emphasize the value of the study of symptoms as observed at the bedside of the patient. When they are observed, studied, and recorded by so accomplished a clinician as von Neusser the product is especially valuable. The condition of dyspnœa has probably never before received so adequate treatment.

PAPERS AND ADDRESSES. By ROBERT CRAIK, M.D., LL.D.

The papers and addresses of the late Dr. Robert Craik, Dean of the Medical Faculty of the McGill University, have been collected and

printed in a volume of 222 pages. The preface is written fitly by Dr. Shepherd one of Dr. Craik's oldest friends. The paper with which the volume opens was written in 1854 as a graduating thesis, when the author was a student of medicine. Within the half century which has elapsed probably no student has written so good a one. It would be a profitable subject of enquiry why the men of those days could write so well, and the men of these days cannot. One can easily imagine the joy which there would be in the Faculty if a student presented a thesis with so fine a style and so much sense. Nine years later Dr. Craik addressed the students, by way of valedictory. The address as printed is marked by the good taste with which Dr. Craik always spoke or wrote. In 1889, he paid a fine tribute to Dr. Howard at Convocation, and on recurring occasions he always spoke fitly. There are few men left who could write as well as Dr. Craik. These random papers are a valuable record and commentary.

Anæsthetics and Their Administration: A Text-book for Medical and Dental Practitioners and Students. By Frederic W. Hewitt, M.V.O., M.A., M.D. Cantab. Third Edition. The Macmillan Company, London and New York, 1907.

The third edition of Dr. Hewitt's book is a most valuable addition to the literature of this subject. The work deals fully with the nature of the anæsthetics in general use, injurious after-treatment effects, the dangers to be met with and how to meet them, and the preparation of the patient. All this is set forth simply and clearly, in a book of modest proportions, well illustrated. It seems to us, however, that in a work on anæsthetics the absence of any mention of local anæsthetics, or the much-discussed morphine-scopolamine combination shows a lack of completeness in an otherwise complete work.

Aids to Medical Diagnosis. By Arthur Whiting, M.D. William Wood & Company, New York.

This little book bears the address of its author, 142 Harley Street, which is something in its favour; it has the imprint of William Wood & Co., which is also in its favour. The book in itself is a good book.

Aids to the Diagnosis and Treatment of Diseases of Children. By John McCaw, M.D., Belfast. Third Edition. William Wood & Company, New York.

This volume in Wood's "Students' Aids Series" is not so little as it looks. It contains nearly 400 pages, and is more valuable than many a more pretentious one.

Medical News.

MONTREAL GENERAL HOSPITAL.

The Quarterly Meeting of the Montreal General Hospital was held November 19th.

The report of the medical superintendent, Dr. F. S. Patch, stated that during this quarter 850 patients were treated to a conclusion as compared with 932 for the corresponding quarter of last year. There were 78 deaths, of which 38 occurred within three days of admission, making the mortality rate for ordinary hospital cases 4.7 per cent. The aggregate number of hospital days was 16,281, an average detention per patient of 19.5 days; the average number of patients per day was 190. In the patient department there were 13,197 consultations, as compared with 11,927 for the corresponding quarter of last year. During the quarter the ambulance responded to 545 calls, compared with 440 for the corresponding quarter of last year. While the number of patients treated in the indoor department shows a slight decrease, the work done has been up to the capacity of the hospital. In the out-patient department the same marked increase shown in the previous quarters of this year continues to be seen.

The president read the committee's report, which stated that the revenue for the past quarter, ending 30th September, amounted to $18,565, and the expenditure to $31,703, leaving a deficit of $13,038.

In connexion with the increasing amount of expenditure, the committee have issued circulars to the present governors, urging them to assist the committee in increasing the present number of governors, which is about 600.

ROYAL VICTORIA HOSPITAL.

Monthly report for October: Patients admitted during month, 268; patients discharged during month, 254; patients died during month, 14. Medical, 81; surgical, 103; ophthalmological, 27; gynæcological, 37; laryngological, 20. Out-Door Department—medical, 420; surgical, 533; eye and ear, 129; diseases of women, 91; nose and throat, 186; total, 1,360. Number of ambulance calls, 81.

Hon. D. McN. Parker, M.D., died, in Halifax, November 4th. Dr. Parker was born of United Empire Loyalist stock at Windsor, in 1822. He graduated in medicine at Edinburgh in 1845. In 1867 he was made

a member of the Legislative Council of Nova Scotia, from which, on account of ill-health, he retired in 1899. During his long term of practice in Halifax, besides being president of the Medical Societies of Nova Scotia and of Canada, he filled a large number of other offices—commissioner of schools, Governor of Acadia College for twenty-five years, president of the Baptist Convention, a member of the boards governing the hospitals of the city.

The Town Clerk of Almonte has forwarded to Dr. Hodgetts, Secretary of the Provincial Board of Health, details of an outbreak of typhoid fever in the town, and the request to the Council that an officer be sent to make an investigation. There are now forty patients suffering from the disease. The local authorities believe the outbreak is attributable to the drinking of well water, and a number of wells in the particular district affected have been closed, pending the report of analysis by Dr. Amyot, the Provincial Bacteriologist, of samples taken from them.

In the year ending October 31st, 1907, in the city of Fredericton, there were 28 cases of diphtheria, 93 of typhoid, and 22 of scarlet fever. Last year there were 53 cases of typhoid fever, 59 of diphtheria, 2 of scarlet fever, and 22 of measles.

During the same period in Brantford the statistics were, typhoid fever, 41 cases; diphtheria, 54 cases; scarlet fever, 25 cases; smallpox, 2 cases; measles and whooping cough, 20 cases; total city cases, 133; total outside, 9.

Thirty-three candidates for admission to the practice of medicine in British Columbia wrote upon the examination papers set by the provincial board of examiners, October 28th. The board of examiners consists of Drs. Fagan, Jones, Proctor, McKeeknie, McGuigan, and Walker.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

H. Kummell. "The Operative Treatment of Suppurative Meningitis." *Archiv. fur Klin. Chirurg., Bd. 77, Heft 4.*

Kümmell, after a short review of the various attempts to treat diffuse meningitis by operation, a review which reveals the fact that the major-

ity of such cases have been of otogenic origin and usually not generalized, relates a case of his own. A man suffering from a basal fracture, with considerable loss of cerebro-spinal fluid from the nose in the first day or two, developed symptoms of meningitis on the sixth day, which during the succeeding three days became absolutely generalized throughout the cranial and spinal cavities, as proved by lumbar puncture. By the ninth day after the accident, the patient seemed moribund; he was in deep coma, breathing was stertorous; there was intense rigidity of the neck; temperature was high; the pulse slow, yet small and thready; there was general flaccidity of the muscles, otherwise no focal signs. Kümmell trephined on both sides low down in the occipito-parietal junction, taking out bone to the size of a five-mark piece and incising the dura which was under great tension. Only a small amount of purulent fluid was evacuated. A gauze drain was pushed down deep in the occipital fossa. Next day there was marked improvement, though the patient was still comatose; but, subsequently, convalescence was rapid. On the second day lumbar puncture showed the fluid still purulent, but on the sixth day it was clear. It is evident that the operation was life saving. It is evident also that the result was due to decompression rather than to the means of escape afforded to pus. Of the latter but very little was evacuated. One may theorize in such a case and believe that the severe compression was probably due to the development of an internal hydrocephalus; and that the small amount of relief given by the bilateral trephining was sufficient just to relieve the internal hydrocephalus rather than to give any wide way of escape for the brain substance itself. Kümmell does not mention the development of any hernia cerebri. The case, as a whole, is extremely important in that it shows the possibility of cure by operative means in a meningitis which was absolutely generalized. Once such a possibility is established, the right to intervene early must be allowed. Then, with that right, we may expect that a certain number of cases may be saved in this otherwise hopeless condition, even though the majority of patients must always die. E. A.

C. A. Porter, M.D., and C. J. White, M.D. "Multiple Carcinomata following Chronic X-ray Dermatitis." *Annals of Surgery,* November, 1907.

Since the first publication of the injurious effects of the X-ray by Marcuse in 1896, the literature of this subject has grown year by year. The earlier articles dealt with the immediate effect of the X-ray, the dermatitis and burns. It soon became recognized that these lesions

were excruciatingly painful and extremely slow to heal; further experience showed these lesions very apt to break down again and again, finally forming chronic ulcers. Following these reports came the first case of cancer developing in a chronic ulcer, and finally the first death from metastatic carcinoma. This paper presents a *résumé* of ten cases of undoubted X-ray cancer occurring in X-ray operations, a very complete report of a case which has been under observation and treatment for ten years, and a second case of chronic dermatitis of less severe degree. Out of these eleven cases no less than six have been fatal. We would infer from this that the mortality of X-ray cancer is much higher than in malignancy from other causes, but it is reasonable to assume that this represents the full number of deaths, while no record has been published of the much larger number of sufferers who, after excisions and minor operations, have as yet shown no evidence of recurrence. For a full consideration of the cases here reported the reader is referred to the article, which is additionally instructive by reason of its photographs and microscopic specimens and descriptions. In brief, it may be said that X-ray work with a large static machine was begun in March, 1896. Five months later a powerful twelve-inch coil was used. Exposure with this machine lasted for several hours every day, at a very short distance from a low vacuum tube. Besides this he developed his own plates. One month later a severe dermatitis occurred followed by the characteristic hardening and longitudinal striation of the nails, multiple teleangiectases, keratoses, and finally chronic fissures and ulcers. Malignancy was first diagnosed five years from the beginning of symptoms, and during the next five years no less than ten different epitheliomas developed in this one case.

Notwithstanding ten years of treatment and twenty-five operations under ether, we have the following conditions. Left hand thumb sound and serviceable, forefinger stiff, but no lesions, third and fourth fingers have been amputated, little finger lacks the terminal phalanx, back of hand presents a few keratoses but no ulcerations. Right hand, thumb useful but ulcer at base and whole ulnar side covered with thickened epithelium, forefinger has a malignant ulcer over its middle, middle finger stiff, fourth finger is lacking as well as tip of little finger, numerous keratoses but no ulcerations. It would appear that those workers who develop their own plates are the more liable to severe ulcerations, that the condition is one of almost complete vaso-motor paralysis, that the clinical appearances of the chronic X-ray dermatoses suggest a precocious and extreme senility of the skin, while microscopic examinations shows the most extraordinary changes, always of a degenerative

character, unequalled in severity and chronicity by the effects of any other agent. For the atrophic condition of the skin, and the telangiectases nothing can be done. Hypertrophic changes, keratoses and warts may with safety be treated in the usual manner. If such treatment fails, excision, with or without skin grafting, will probably relieve the pain and result in a cure. Excision and skin-grafting will be the best treatment for recurrent fissures. All ulcerations, which, under ordinary treatment, remain open after three months, should be thoroughly excised and carefully examined, and appropriate treatment instituted.

John D. Malcolm, F.R.C.S., Edin. "A Case of Injury and one of Exposure of the Bladder in Operations for Femoral Herniæ; Recovery in both cases." *Lancet,* November 2, 1907.

The first case was operated upon in 1900. A few months previous to the time of the operation, Moynihan had collected 171 cases in which the bladder was found in a hernial sac, but this paper had not been read by the author at the time. Statistics are quoted showing that the bladder had been so noticed in 1 per cent. of all operations for hernia. Out of 171 cases, 58 had bladder injury which was recognized immediately, with a mortality of 17 per cent.; there were 22 cases of cystocele, first recognized after operation as a result of injury to the bladder, but the mortality is not given; while in 19 cases a cystocele was found post mortem.

When its situation was stated, the bladder in men was found in the crural canal twice, and in the inguinal 128 times; whereas in women it was found 27 times in the crural canal, and 11 times in the inguinal. In the first case the hernia was quite distinct previous to operation, and went back when the patient lay down. At operation, though the canal was wide, no sac could be made out, something intervened, which seemed to be an unusually thick layer of subperitoneal fat. As a matter of fact there was the bladder, which, though cut into, gave no escape of urine or any indication of a viscus having been opened. The sac was eventually secured, and the usual radical operation performed. Some five hours afterwards the patient complained of pain suggesting a distended bladder, and on the catheter being passed about half a pint of bright red fluid was withdrawn, when the true condition of affairs was at once recognized. The abdominal cavity was opened through a median incision and the peritoneal cavity found to be completely shut off from the groin wound. While arranging for drainage, and as a result of manipulation, the ligature of the sac became detached, thus opening up the peritoneal cavity. Through the median incision a wound

in the bladder of over one inch long was found. This was repaired by suturing in layers, the abdominal cavity was washed out, and the median wound closed without drainage, while the groin wound was drained by tube and gauze. Although the bladder was drained by catheter an escape of urine occurred on the third day and lasted for four weeks. The patient left the hospital with a small sinus from which a silk ligature was extruded three months later, when prompt healing took place.

The second case, also a woman, presented an irregular oval swelling, occupying the position of a femoral hernia. It was positively asserted that its appearance was only of a fortnight's duration. At operation, a mass was found to be intimately connected with the femoral ring and adherent to the inner side of the sac. To better determine the nature and connexions of the mass, the abdomen was opened in the middle line, when a strip of omentum was found running down to the femoral ring. Traction on this caused the tumour to be pulled outward, and on a sound being passed, the mass was found to be the bladder. The bladder wall was very thin and firmly adherent to the inner wall of the hernial sac, which was greatly thickened. The operation consisted of separating these structures, and the usual radical procedure. The patient made an uninterrupted recovery.

W. L. B.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

Retrospect of Tropical Diseases.

Plague.—This pest is probably slowly abating, but it will probably account for one and one-quarter millions of deaths in Asia for the year 1907. The Indian plague-deaths for three years are as follows:—1904, 1,023,815; 1905, 946,558; 1906, 316,550, and for the first two and one-half months of 1907, at the rate of 1,220,000.

In 1903 the only serious accident in connexion with the protective inoculation occurred. This was an outbreak of 19 cases of Tetanus at Mulkowal; the cases were people who were inoculated at the same time with the same needle: the commission, whose report is recently published, has gone very carefully into the facts, and finds that the Bombay stock, which supplied the material, was not at fault: the dropping of a vaseline-covered cork on the ground by a native helper, and insufficient consequent sterilization appeared to be responsible for the

contamination. There is nothing strikingly new in the scientific knowledge or treatment of plague. It is well recognized that certain biting fleas and rats, and nearly all forms of domestic animals and fowl carry the infection.

Malaria.—It is a curious fact, noted by Gillot (Soc. de Biol., November 17, 1906), that the malarial parasite was found with motile granules twenty-four hours after the death of the patient in whose blood it was.

Malta Fever.—Investigation of this disease has been fruitful; the work of the Mediterranean Fever Commission has resulted in the discovery that the organism, micrococcus melitensis, known for a long time, infects people from the milk of the Maltese goats.

Bassett Smith, in the course of a long series of observations, concluded that in the acute stages of the disease, artificially prepared toxins acted detrimentally; but in chronic cases, with mild relapses, see-saw temperature, and no hectic, it does well; he uses an opsonic index rising after injection, as the signal for continuance.

Kala Azar, caused by the Leishman-Donovan organism, has been very prevalent in Assam; one-third of the cases are under ten years of age, and one-quarter make a permanent recovery. It has been recently discovered, that in the matter of carrying, the bedbug is guilty; the mosquito, the tick and the louse innocent. Patton was able to find the parasite in development in the stomachs of bedbugs fed on patients.

Beri-Beri.—We are here in about the same position as a year ago, but Braddon finds that stale, white rice contains a poison capable of producing beri-beri, and states that the beri-beric poison is a stable, non-volatile alkaloid like atropine or muscarine. The diet changes lately proved successful, have been repeatedly verified as prophylactic measures.

Black Water Fever.—Buchanan (B. M. J., April 27, 1907), puts forward the idea that to malaria and quinine a third factor must be added—renal incompetency; so that a discovery of this condition in malaria ought to suggest treatment other than the specific—a view that we predict will not find universal favour.

Eosinophilia and its causes.—It is not found in infections by vegetable parasites, such as tinea or by animal parasites, as scabies, pediculi or demodex. It is not found in mild intestinal parasitic infections, such as ascaris, oxyuris or trichocephalus, nor in malaria. It is found in tænia, and a moderate grade 6 to 10 per cent., may be looked for in infection by bilharzia, ankylostomum and trichina.

"Tropical" Abscess of the Liver.—A case which was drained, and became subsequently infected by staphylococcus, was cured by bacterial injection. Leonard Rogers cited (Royal Med.-Chir. Soc., April 9,

1907) 15 cases of fever with acute hepatitis and leucocytosis. He thinks this a pre-suppurative stage of amœbic abscess, and though bowel symptoms were absent or poorly marked, he gave large doses of Ipecacuanha with complete success. Five of these had had the liver explored surgically without result. He considers the leucocytosis with the hepatic signs the chief signal for the adoption of the treatment.

TUBERCULOSIS.

Bloch. *Berlin. Klin., Woch No.* 17, 1907, advises this procedure for the detection of tubercle bacilli in urine, as a quicker one than ordinary inoculation. The urine is drawn by catheter, centrifugated, the sediment shaken up with 3 cc. of sterile salt solution, and of this 1 cc. is injected under the skin of the groin of the guinea-pig. Ordinarily the inguinal glands can just be detected by the fingers; in nine or ten days, he says, they may attain the size of a hazel-nut, may be easily palpated, and he has demonstrated the bacilli from them in smears and sections.

Several years ago we were under the impression that bacteriological technique would enable us to differentiate tubercle bacilli from smegma, because smegma were acid-fast but were not alcohol-fast, and by the use of alcohol, could be decolourized, whereas tubercle could not. This appears not to be the case. In conversation with colleagues of experience in this regard, and from his own experience, the writer is of the opinion that mistakes can and do occur, even with great care in bacteriological technique; those of whom inquiry was made cited several cases where apparently undoubted tubercle bacilli were found, and yet subsequent operation or autopsy proved the contrary. Young, of Baltimore, has enquired carefully into the subject and considers that a slavish care of technique in drawing the urine is necessary, as no other method can be depended upon; animal experiment seems to be the safest final method.

Tatuschescu gives one or two refined methods of determining apical tuberculosis. The first is pressure with the fingers behind the sterno-mastoid in its lower third, equally on both sides; there may be greater pain on the affected side, due, he says, to a neuritis of the plexus; the second, much like this, consists of rolling the cubital nerve equally on the two sides against the epicondyle of the ulna. Greater pain again may indicate the diseased side. The method sounds as if it might be valuable in but few instances.

Oppenheim reports two cases of tuberculous peritonitis much improved by "sun-baths" of the abdomen. Rabinowitsch (*B. Klin. Woch. No.* 2, 1907), took calcified nodules of so-called healed tuberculosis, in the

bronchial and mesenteric glands, injected them in guinea-pigs, and got tuberculosis in them in periods varying from three weeks to five months. The virulence appeared unaltered. These disquieting observations have been made in several instances during the last few years; they certainly point to the apparent fact that healing is a slower process than it seems.

An explanation of Williams' Sign is offered.—The sign consists in a lessened excursion of the diaphragm as seen by the fluoroscope; on the side of which the apex is affected, de la Camp and Mohr say the phrenic is entangled as it crosses the dome of the pleura. It may be compression or an infective neuritis.

In a series of two years ago, H. P. Loomis, in 500 cases of pulmonary tuberculosis, found antecedent pleurisy in 16 per cent.—average interval three and one-half years. J. McC.

PATHOLOGY.

UNDER THE CHARGE OF J. G. ADAMI.

Various Authors. "Fœtal Bone Diseases." References, see below.

It is now recognized that the new born infant may be the subject of bone diseases of different characters. It is not so many years ago that the differentiation of these bone diseases was unrecognizable, and, in consequence, they were classified under a single heading of fœtal rickets. The recognition of the so-called fœtal rickets rested with the external appearances of the infant. There have been since then, a number of more minute examinations of this disease, which have demonstrated it to include different forms of bone lesions. This recognition lies mainly in the study of the microscopical appearances of the bones.

With the first evidence, of the non identity of this large class of fœtal rickets, the nomenclature of the bone diseases became quite confusing; thus, Urtel designated a case studied by him as "chondritis fœtalis," Kirchberg and Marchand suggested for another, "micromelia pseudorachitica," and Virchow named another "fœtal cretinism." These terms are all the development of a closer study of the bone conditions in young infants. However, up to this time, no attempt was made to classify the diseases under various systematic headings according to the faulty structures.

Parrot was among the first to collect a certain type of lesion under a definite head; the cases he studied were those which showed a faulty structure in the growing cartilage, and whose secondary results led to improperly constructed bone. This class of disease he described as

"achondroplasia," or "micromelia chondromalacia." These terms, too, lacked in definiteness, and, although segregating those diseases, which had their origin in the faulty development of cartilage, from other bone diseases, it did not properly classify the diseases of this type. Subsequently, Kaufmann made an improvement by classifying the same type of disease under the term "chondrodystrophia fœtalis," which he then subdivided into the hypoplastic, malacic, and hyperplastic types.

The chondrodystrophies include all of those lesions which have their origin in the mal-development of the cartilage, regardless of the nature of the external appearances. It will be seen from this that no attempt at classification is made which considers the etiological factor.

The syphilitic bone lesions which can be diagnosed by their character and by the changes in other organs, are put in a class by themselves.

Some confusion has arisen in designating certain cases of fœtal rickets, as fœtal cretinism. This was, in consequence of observing the outward appearances of the infants. The facial expression, with the sunken nose and thick lips is common to different forms of fœtal bone disease, and simulates very closely the appearance noted in cretins. Virchow and Kaufmann were the first to point out that this facial expression was the result of certain bone changes in the base of the skull, and Kaufmann, in particular, showed that it was not alone to be found in cretinism. Virchow has recorded several cases of fœtal cretinism in the literature, and his diagnosis of the disease rested, to a great extent, on the history of the cases. The facial expression, he found, was due to an early synostosis of the bones of the base of the skull, thus inhibiting the growth in length of this portion, with a consequent flat face. A similar early bony union of the basal skull bones is found in cretinoid calves. Kaufmann, however, has demonstrated that other conditions than synostosis may lead to the facial defect. Thus, in general, diseases of the cartilaginous structures is found to affect, also, the cartilage between the sphenoid bone and the basilar process of the occipital bone. An inhibition of growth, at this point, leads to similar deformities, as synostosis.

Another characteristic, which is so common to the so-called fœtal rickets, and which is not suggestive of any one particular disease, is the large head and short limbs of the infant. These characters, which are present at the time of birth, and which may have various underlying causes, are the result of faulty development of the bone or cartilage.

At the present time, the term fœtal rickets is used as a general one covering the fœtal bone diseases of various kinds. By the use of this term, we do not interpret any one definite condition. According to

the histological findings present in fœtal rickets, we can classify the disease under, (1) fœtal cretinism, (2) true rickets, (3) chondrodystrophia, (4) osteogenesis inperfecta. For all conditions in which an abnormal frangibility of the bone is present, the term osteopsathyrosis has been given, and this has been applied in congenital bone diseases, mainly to osteogenesis imperfecta. Similarly, too, the use of the term congenital osteomalacia, must be a wide one, not referring to any one disease, but to all forms of softened bones.

Since Virchow's first description of the new-born with cretinism, there has been much discussion as to the proper identity of the disease. It is questioned by many whether true fœtal cretinism is met with, and, according to these writers, the appearances of cretinism are due to other causes, and the bone lesions are those of another category. It must be admitted, however, that the faulty bone construction simulates in the post-natal cases of cretinism, those of the hypoplastic chondrodystrophies; that is, there is an under production of cartilage at the epiphyseal lines.

Similarly, it is doubted by many that true rickets ever occurs in the new-born. It is enough to say that certain forms of the chondrodystrophies resemble the changes found with rickets, for, in some cases, the diseases are almost inseparable. The cases of true rickets in the new-born have been greatly reduced in their numbers by later investigation. The histological changes in true rickets are to be looked for at the epiphyseal junction. Here it is found that the blood vessels develop large and irregular lacunæ in the margin of the cartilage, giving the epiphyseal line an irregular and indented outline. The vascular supply at this margin is much greater than is present normally, and there appears to be a very active process of erosion of the primary calcified area. The cartilage tissue in itself is little altered, save for an increased power of growth. The bone corpuscles are not able to keep pace with the activity at the epiphyseal line, and hence the trabeculæ are poor in structure.

There are some features in connexion with the chondrodystrophies, which are fairly constant. The fault of the improper growth of the bones lies with cellular changes in the cartilage. In some instances, the cartilage proliferates at a very rapid pace, increasing the size of the epiphyses to several times that of the normal (the hyperplastic type). It has, also, been frequently noted that the periosteum dips in between the epiphysis and diaphysis, thus inhibiting the formation of new bone at the epiphyseal line. Nothing is known of a causative factor bringing about this hyperplasia of the cartilage. This type of chondrodystrophia

occurs the most frequently, while the opposite condition of a minimal production of cartilage is not so often seen. In the chondrodystrophies, the ossification, both of periosteal and epiphyseal origin, takes place normally. There appears to be no lack in the function of the osteoblasts in laying down the bone. There is, however, the improper preparation of the framework on to which the bone is to be built. Ossification in the chondrodystrophies is not retarded, but may in some cases occurs very early.

The majority of the children born with chondrodystrophies die shortly after birth. The literature contains only few observations of cases extending over several years. Nevertheless, several adults have been described having the peculiar development common in this disease (Schmidt). Hecker reports a case of dwarfism in a person of twenty-three years. On account of its similarity with Müller's description of congenital rickets in calves, he lists it under this class. Several other such cases have been reported by Parrot and Friedenheim.

In osteogenesis imperfecta we have to deal with a disease which has its main characters in a lack of production of true bone. In these cases the cartilage is not at fault, and little or no change is to be noted in this tissue. The want of bone production falls entirely on the lack of osteoblasts derived from the periosteum. The periosteum in the long bones is the result of a metaplasia of the former perichondrium. It appears in these cases of osteogenesis imperfecta that a proper transformation of the latter has not taken place. Therefore, we find, as has been pointed out by Looser, that the enveloping tissue of the diaphysis continues to form cartilage. There is a tendency in this periosteal cartilage to transform itself into a form of bone. This bone is laid down in thin lamellæ, whose cells are more like those of the cartilage than of bone corpuscles. The lack of growth in length of the bones in this disease is due to the want of ossification at the time of junction with the cartilage.

We have, therefore, in the four types of fœtal bone disease the following characters:—In fœtal cretinism there occurs a premature synostosis. True rickets shows a hyperæmia and over-activity at the epiphyseal line. The chondrodystrophies present organic changes in the cartilage tissue, mainly in the appearance and arrangement of the individual cells, while in osteogenesis imperfecta the proper laying down of bone is inhibited by the want of osteoblastic function.

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O. K.

Dr. F. Suter, Privatdozent für Urologie, Basel. "On the Etiology of Bladder Infections." *Zeitschrift f. Urologie*, Bd. I., Hfs. 2, 3, and 4.

Material for this article was obtained from the clinic of the late Dr. Emil Burckhardt in Basel, the investigations being spread over four years, while the number of investigated cases is the largest it has been our privilege to see brought together by one investigator. The results should go far to settling some doubtful points respecting the bacteriology of the urinary tract.

The method employed was to take smears and cultures from the urine, after preliminary precautions to avoid urethral contamination. Control experiments showed these precautions to be sufficient.

The cases embrace 78 cases of tuberculosis; 58 cases of infection with B. coli; 38 cases from various cocci and B. proteus; 22 cases from cocci and B. coli, and 15 miscellaneous cases, including gonorrhœal infection.

The 78 cases of tuberculosis and 35 of the colon cases and 1 case of streptococcus, he considers to be endogenous, which is, perhaps, the same as hæmatogenous, the remainder were all secondary to instrumentation or eogenous. Some points in these various divisions are not without interest.

Of the 78 cases of tuberculosis, 40 affected males and 38 females. In 12 cases the kidney alone was affected; in 51 the bladder and kidney; in 15 the bladder and probably some other organ.

Seventy of the 78 cases remained sterile to ordinary media; 8 showed various growths, 7 of these, however, were secondary to instrumentation, and 1 was B. coli infection. These findings, the author thinks, support Rovsing rather than Pousson, Albarran, Halle and others, who maintain

that tuberculosis in this region is generally accompanied by a mixed infection.

Tubercle bacilli were found in 62 instances, and not in 16.

From investigations into the 35 cases of endogenous colon infection he finds that in 10 cases it originated in the pelvis of the kidney, in 6 in the bladder, while in 14 cases both bladder and kidney were involved.

Tuberculosis and B. coli infection have much in common. Of the exogenous or instrumental infections colon was the commonest. He quotes 23 cases, where the infection was due to a catheter or other instrument, and in which pure cultures of B. coli were obtained. In all these cases, however, with four exceptions, in addition to instrumentation, residual urine, stricture, tumour or trauma were also present. The prognosis was bad, but 3 out of the 23 being cured.

In 38 cases the infection was due to various cocci and to proteus. Here also, in addition to instrumentation, tumour, stone, stricture and residual urine payed a part.

Cocci decomposing urea were isolated 28 times, and cocci which did not decompose urea 11 times. Some streptococci decomposed urea, others did not. The same was true for staphylococci. All cocci, however, which decompose urea, are not necessarily accompanied by alkaline urine, as this would necessarily depend on the original degree of acidity, the number of bacilli present, and the length of time the urine remains in the bladder. Out of 39 instances where cocci, which decomposed urea, were present, 23 showed alkaline and 16 acid urine.

The prognosis for cocci infections is good; of 38, 18 were cured and the remainder all possessed some irremediable cause, such as tumour.

In 22 instances cocci and B. coli were associated, the cocci being generally staphylococci. The same predisposing causes were present. B. coli seemed to have a firmer hold on the organs than the cocci, and in the majority of cases gradually expelled these, and eventually appeared in pure cultures. The reverse, however, occurred in three instances.

In 15 cases of gonococcus and hæmaturia the cultures were negative, showing that these conditions did not predispose to further infections. His conclusions we venture to give at some length.

In tuberculosis of the urinary tract the urine is generally sterile to ordinary media, and, except as a result of instrumentation, it remains so. The urine is acid. The sexes are equally affected. The infection is apparently hæmatogenous and starts in the kidney.

In endogenous colon infection the kidney is also frequently the primary and chief seat of the infection. The urine is acid and the sexes equally liable.

In the exogenous infections the presence of some predisposing cause, such as tumour, stone, stricture, etc., is generally necessary in addition to the use of instruments. Men are much more liable than women.

In 23 cases of infection with B. coli the urine was acid, the pus small in quantity, the cystitis of mild grade but most difficult to cure. Bacteruria is generally due to B. coli.

In 38 cases of infection by cocci (48 separate tests) a single infection was found 39 times, mixed infection 9 times. Staphylococcus or diplococci were isolated 47 times, streptoccus 7 times, and proteus twice. The urea was not decomposed 11 times, and decomposed 39 times; of these latter 23 were alkaline, and 16 acid.

In 22 cases of mixed infection with B. coli and cocci, the presence of B. coli seemed to keep the urine acid in reaction. Out of 15, 9 were acid, 1 neutral, and 5 alkaline.

Out of 217 observations, 187 showed acid urine, 29 alkaline, and 1 neutral. In the 30 non-acid cases the urine in each instance contained cocci which decomposed urea.

Th. Rovsing, Copenhagen. "The Significance of Tuberculosis of the Bladder and Curability of the Same." *Archiv. f. Khin. Chir.*, Bd. 82, 1907.

Tuberculosis of the bladder was formerly considered incurable. This, according to Rovsing, was because we considered it primary in the bladder. On the contrary, it is rarely if ever primary in the bladder, but is generally primary in the kidney.

His conclusions, drawn from 56 cases, extending over a period of sixteen years are:—

1st. That tuberculosis of the bladder is generally a transplantation from one or other kidney.

2nd. That the genital variety rarely affects the bladder.

3rd. The bladder is very rarely affected primarily.

4th. It is hopeless to treat the bladder before removing the affected kidney.

5th. In examination of suspected kidneys, cystoscope and segregation of the urines do not suffice, but ureteral catheterization is necessary.

6th. Even if bacilli and pus are found in both sides, it does not necessarily mean that both kidneys are affected, as it may be that the disease which has descended one ureter has began to ascend the other, and the kidney may still be free.

7th. In such cases and in cases where catheterization of the ureters is impossible, a bilateral lumbar incision is justifiable.

8th. Where the affected kidney is removed the bladder frequently heals of itself.

9th. If not, treatment with 6 per cent. karbolwasser will generally be be successful.

Th. Rovsing, Copenhagen. "Total Extirpation of the Urinary Bladder." *Archiv. f. Klin. Chir.*, 82, Bd. 4. Hf., 1907.

Up to the present this operation has been performed 29 times, in 18 males with 11 deaths, and in 11 females with 4 deaths. The mortality was generally due to infection of the wound secondary to urinary contamination, or to infection of the kidney from an ascending infection. Till the present the surgeon has placed the ureter either in the wound, in the rectum or sigmoid, or in females in the vagina. The latter gave by far the best result.

In the case in point Rovsing brings out the ureters through Petit's triangle, one in each loin, where he allows them to form a small papilla, and, subsequently affixes an apparatus which drains down to a urinal carried over the pubis. He expresses himself as pleased with the result.

The two criticisms which naturally arise are, first, the danger of infection of the renal pelvis, and, secondly, the difficulty in fitting a suitable urinal which will prevent leakage and subsequent skin excoriations. Certainly, however, there is less danger of infection in the new situation than in either the wound or rectum, and Roosing claims to have procured by the formation of the aforementioned papilla the necessary adjunct for a successful artificial bladder.

Prof. Alf. Pousson, Bordeaux. "Unilateral Nephritis." *Zeitschrift f. Urologie,* Bd. I, Hf. 10.

Carcinoma, tuberculosis, calculus, hydro and pyonephrosis and pyelitis are often unilateral. The possibility that non-surgical lesions of the kidney may also be so has been advanced. This possibility Prof. Pous-sibility of a unilateral nephritis?

Acute nephritis is generally bilateral. If, however, bacteria can filter through the kidney, as we know to be the case, without causing a lesion—except, perhaps where stone or obstruction or injury adds a predisposing cause—is not this sufficient to cause us to admit the possibility of a unilateral nephritis.

Frossner found experimentally that by causing a streptococcic septicæmia in rabbits, by taking cultures from the renal veins and repeating his inoculations, after two or three passages he got infection of the kidney alone, the other organs remaining free. That is, he established

an elective virulence. While in the majority of cases the resulting lesion was bilateral, in a number it was unilateral. Castaigne and Rathery have confirmed this.

Post mortem in 130 cases of pyelonepliritis, Goodhart found 19, or 14.5 per cent. one sided, and Robert Weis in 71 found 12, or 17 per cent.

Clinically, Israel, Lennander, Castaigne and Rathery have asserted their belief in unilateral disease, and the author, who has collected 40 cases which were operated upon for acute nephritis, finds that in 29 of these but one side was operated upon, and 25 recovered. He therefore concludes, we think too readily, that these 25 were unilateral, otherwise the surgeon would not have confined his operations to one side, and, if he had and disease existed, they would not have recovered.

In chronic nephritis the post mortem records are against a one sided manifestation, nevertheless, Israel, Smator and Klemperer, among others, support the occurrence. Castaigne and Rathery out of an unquoted number of cases have never found a strictly unilateral instance, but have discovered numerous cases where one side was much further advanced than the other. They therefore conclude that it may occur. An instance is that of a woman, æt. 33, who died from pneumonia. The left kidney was small and shrunken, with an adherent capsule, and weighed 25 grams. The right was large, white, and weighed 125 grams.

Edebohl out of 72 cases treated surgically, considered 11 unilateral. The author, out of 14, considers 2 to be such, while from the literature he collects 155 cases, 32 of which are said to be one sided.

He is inclined to consider pelvic peritonitis in women and appendicitis in both sexes as probable agents in causing one side rather than the other to be affected.

KRETSCHANER, Chicago. "Essential Renal Hæmaturia." *Zeitschrift f. Urologie,* Bd. I, Hf. 6:

Material and stimulus for this article were alike supplied through Prof. Zuckerkandl, of Vienna, and it is under his direction that the author puts forward his findings in this little understood lesion. Cases of essential renal hæmaturia were formerly more common than at present, largely on account of a more careful pathological examination in the recent cases, with the result that many cases so-called, have been accounted for by definite microscopical findings. The diagnosis can be made only by excluding all other causes of hæmaturia, and while it is easy, pathologically, at least, to exclude such causes as stone, tuberculosis and new growths, it is not so easy to exclude various grades of nephritis.

In support of a definite pathological change being present in such kidneys, the author cites a case of hæmaturia which was determined to originate in the left kidney. Operation was undertaken for its relief and the kidney found to be large and congested. The organ was stripped of its capsule and a snipping taken for pathological examination. The hæmaturia was arrested, but recurred eighteen months later, necessitating a nephrectomy, when all symptoms ceased.

Examination of the section taken at the first operation showed nothing abnormal, except an occasional cast in situ and the presence of blood filling Bowman's capsule and the neighbouring tubules. The number of nuclei in the glomerulus also seemed greatly increased. A diagnosis of glomerulitis proliferans and nephritis hæmorrhagica was made. The second section showed a definite subacute nephritis.

From the literature he collects 129 cases of essential renal hæmaturia. Only 61 had been examined microscopically. Of these 61, 52 showed nephritis, 9 did not. Of those 9 however, in 4 but a small piece of tissue had been examined, so that disease elsewhere might have been overlooked, and in 4 others a general hæmophilia or such existed, so that with one exception all could be excluded. In one case, however, the term essential seemed to be the only one which would denote the condition present. He nevertheless concludes that it is unjustifiable to assume that blood may come from a totally unchanged kidney; that the lesion may be extremely slight, and that it is probably of the nature of a degeneration (hyaline) of the capillary walls in many cases, but that the pathological findings may vary greatly.

R. P. C.

OPHTHALMOLOGY.

UNDER THE CHARGE OF J. W. STIRLING

Casey Wood, "On some Ocular Symptoms Common To, or Produced By Affections of the Nose and Accessary Cavities." *Ophthalmology*, January, 1907.

The symptoms taken up in this paper are headache, vertigo, and lacrimation. Much has been written upon the first symptom, headache, but as yet the differential diagnosis between headache due entirely to neighbouring cavity affections and that due to diseases of the eye alone, has not been satisfactorily established. The result is that frontal headaches due to sinus disease have been treated by prescribing glasses and *vice versa*, headaches due to errors of refraction have been treated by

nasal correction. In differentiating between these two forms clinical evidence is of much importance., The author gives the following clinical picture: "Ocular headache from eye strain is almost invariably bilateral. It is rarely severe or accompanied by nausea or vomiting, and it is practically always a daylight headache. It does not keep the patient awake at night, because when the lights are turned out there is no use made of the eyes. There is no eye strain, and, consequently, no reflex pains. Head pains from eye defects are almost invariably frontal, temporal, or occipito-frontal. Vertical or general headache or pains confined to one side of the head or to the occipit or nuchal region alone, or very severe acute pain in any part of the head is probably not of ocular origin. True eye headache generally follows or is, at least, associated with other eye signs and symptoms. Headaches from eye-strain generally follow prolonged and continuous use of the eyes for near work, such as reading, sewing, writing, china painting, etc."

Headaches of ocular origin often follow extensive "shopping," railway journeys, and are often accompanied by pain in the eyes, redness of the conjunctivæl, and other signs of ocular involvement.

It is to be borne in mind, too, that headache primarily set up by an uncorrected astigmatism may be aggravated or precipitated by a nasal "cold," or by the nervous irritation of an infected sinus.

The second symptom, vertigo, has been extensively discussed, but differential diagnosis has been avoided. Ocular vertigo is generally due to heterophorias and heterotropias of a paretic character.

Vertigo at times may be readily referred to paralysis or paresis of the extraocular muscles, but the etiology of the dizziness which accompanies unbalance between heterophoria and heterotropia is not easily referred to its proper origin, and may be regarded as a nasal reflex, or attributed to other causes.

Ocular vertigo follows upon extensive use of the eyes and is relieved by rest. Other eye symptoms are generally present, which are relieved by correction.

Of lacrimation, the third symptom, the author says, "probably an increased flow of tears is more often a sign of nasal than ophthalmic infection, or the ocular irritation that results in the over-production of tears, or their insufficient drainage, or both, quite commonly originates in nasal disease."

After remarking upon the impossibility of taking up the organic lesions, due to nasal and accessary sinus disease, the author mentions diseases of the conjunctiva, eyelids, lacrimal apparatus, cornea, orbital

muscles and choroid due to nasal disease and orbital abscesses, and of the atrophy due to infection from the ethmoidal cells, or to abscesses originating in the frontal or maxillary cells. Paresis and paralysis of the extraocular muscles following sinus infections are the most interesting, he believes, of all the ophthalmic sequels. The nose and neighbouring parts should be examined before a paresis is marked "rheumatic," "syphilitic," or "idiopathic."

The cause of ocular paresis in nasal cases, Wood believes, to be a peripheral infection of the nerve filaments supplied to the muscles involved.

Finally, asthenopia of nasal origin is not to be neglected. When all errors of refraction and muscle unbalance have been corrected without relief, it is to be remembered that nasal and neighbouring sinus disease are often factors that must not be ignored.

PATERSON. "Ocular Diseases of Nasal Origin." *Ophthalmology*, July, 1907.

The author discusses generally, at first, the relation between ophthalmology and rhinology, and says that even now when we know the relation between nasal and lacrimal disease, the nose is very often neglected.

A case is reported of a boy of fourteen years who came to consult the author about a conjunctivitis of the left eye. The presence of a foreign body was suspected, but search gave negative results. Questioning brought out the fact that the boy had had pain for a number of days, limited to the left brow and temple. There was also present a rhinitis of a week's standing. Examination of the nose revealed pus coming from the left ostium naturale of the antrum. Drainage and irrigation soon cured pain, conjunctivitis, and catarrhal conditions.

The relation of keratitis to diseases of the nose is then taken up, and the relation of phlyctenular keratitis to the presence of hypertrophied tonsils and adenoids.

The author advises in all recurring keratitis, a thorough nasal exploration, and also that in cases of unilateral ocular maladies, the nose may be able to furnish evidences of the cause of the disease.

The case is cited of an adult male, a railway section boss, who was seen in June, 1905. He had been treated for neuralgia of the head. The pain was most intense in the right temple, and so severe as to prevent sleep. Eventually, proptosis and diplopia developed. Later examination showed the tension which had been increased to be normal. There was also a mild papillitis of the nerve of the right side. He was unable to move the right eye beyond the middle line, and movement inwards was possibly slightly restricted.

Under cocain the ethmoid cells were corrected, seemingly as far back as they extended. Pain speedily lessened and the proptosis subsided.

Five days later the papillitis was subsiding and the media was much clearer. On August the fifteenth the eye grounds and vision were normal, and diplopia was present only on looking to the extreme right.

The author cites, too, a case of a boy of fourteen years, who suffered with pain in the left eye, the entire frontal region and the left temple. Prolonged examination of the nose revealed pus in the anterior ethmoidal cells. With clearing up of this condition all pain ceased, photophobia and lacrimation disappeared.

JOHNSTON. "Functional Eye Disturbance caused by Disease of the Antrum of Highmore." *Ophthalmology*, July, 1907.

"During the past two years much has been written concerning the relation between diseases of the eyes and affections of the accessary cavities of the nose. Some observers claim that many serious intra-ocular lesions are caused directly by catarrhal or purulent conditions in the various sinuses." He goes on to say, some would have us believe "that the frontal sinus is a Pandora's box which may give rise to such serious diseases as optic neuritis, chorio-renititis and glaucoma."

Johnston believes these views too radical, but is convinced that some obscure defects of vision and asthenopic symptoms are to be explained by the presence of pus in one or more of the sinuses.

Johnston wishes, however, to call attention particularly to those patients who complain of various painful symptoms on use of the eyes, but who are not benefited by correction of muscular and visual defects. These patients constitute a most troublesome class which the ophthalmologist has to treat.

The author reports a case showing the direct connexion between antrum disease and functional eye disturbance.

M. R., aged 43, came to consultation for nasal catarrh of long standing. For some years the right eye had given him much trouble. On prolonged use the right eye would blur. Numerous examinations of the eyes found no cause for the condition. The patient suffered, too, from temporary double vision. The vision of the right eye was one-half of normal, the muscles and fundi were normal.

Examination of the nose revealed empyema of the right antrum. This was subsequently treated, and, as improvement in the antrum condition took place, so the right eye grew gradually better, until the vision in it was better than that in the left.

Johnston concludes: "We must strive to find a happy means between the specialist who would have us believe that all serious eye lesions are

caused by nasal disease, and the too conservative specialist who believes that there can be no connexion between the two organs pathologically."

S. H. M.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The second monthly meeting of the Society was held October 18th, 1907, Prof. Wesley Mills, President, in the Chair.

A MACHINE FOR THE FORCIBLE CORRECTION OF DEFORMED FEET.

J. Appleton Nutter, M.D., demonstrated this apparatus.

J. M. Elder, M.D.—I was much interested in seeing this contrivance which Dr. Nutter has demonstrated, and many of the orthopedic surgeons present at the meeting of the Canadian Medical Association were very much struck with it. It seems to me an excellent contrivance for the deformities which Dr. Nutter has enumerated. Any one who has done any of these operations knows how difficult it is to get the right amount of force necessary without undue traumatism, and, I think, this device ought to produce most, if not all, of the results which the inventor hopes for, and I trust we may have a chance to view its practical application.

Wesley Mills, M.D.—I think the society is to be congratulated on the fact that this communication has been furnished by one of its youngest members; at all events, I congratulate myself, as President, that one of the earliest communications of the season has been made by one of the youngest members of the society. I have often wished that the junior members of our profession in the early years of their practice, when they have some time to devote to it, would endeavour to make some new piece of apparatus, or carry out some research which might be of permanent value to the profession. There are in each period of one's life, its own special opportunities,, and I simply wish to emphasize this now, in the hope that other members may emulate Dr. Nutter in this respect. I remember one man invented and constructed a piece of apparatus which was of considerable importance before he was a graduate at all, when he was yet a third year student; I have also a recollection of independent work done by Dr. Nutter when he was still an undergraduate.

GONOCOCCUS ISOLATED FROM THE KNEE JOINT.

W. S. Lyman, M.D., demonstrated the organisms.

F. G. Finley, M.D.—One point of interest was that the pathological examination was really the first clue to the recognition of the disease.

The man had no urethral discharge when he was under my care, and there was absolutely no pus in the urine. The urethra was subsequently very carefully examined in the surgical ward, and still no gonococci were found, and it was only on the finding of the organism from the joint that the nature of the trouble was apparent. It is probable that the gonorrhœa was an old one; this again is of interest, illustrating the long period which may elapse between the primary disease and its metastases. This feature was pronounced in two cases of malignant gonorrhœal endocarditis which have come under my notice. In one recently reported by Dr. Ridley Mackenzie there was an interval of two years, and in another reported by Dr. McCrae and myself, an interval of nine months between the infection and the development of endocarditis.

C. P. Howard, M.D.—This case very well illustrates the importance of a bacteriological examination in all joint cases, especially those of a doubtful nature. For over a year of my assistantship in Baltimore it was my privilege to do the routine bacteriological examinations in the medical wards, during which I found abundant evidence to convince me of the truth of this statement.

Cases which clinically were considered of purely "rheumatic" origin, were shown by bacteriological methods to be gonorrhœal; again, cases exhibiting the stigmata of gonorrhœal arthritis, were in two instances proved to be due to the streptococcus pyogenes. The working clinical classification of arthritis is not an entirely satisfactory one, and the bacteriologist is frequently called upon to determine in an obscure case to which of the various groups a certain case belongs.

C. W. Duval, M.D.—This case is very interesting in that the organism was isolated from the aspirated fluid. As a rule, the gonococcus is recovered from the joint only after careful curetting or scraping. The aspirated fluid, in my experience, seldom gives positive results. This case is not only remarkable in that it contains the organism in the aspirated fluid, and in enormous numbers, but also from the fact that the patient is at present free from urethral discharge. Though he denies urethritis, the isolation, however, of the gonococcus from the joint is positive evidence of some former infection elsewhere, and it is more than likely that it occurred at the usual site.

TABES DORSALIS AND ITS RE-EDUCATIVE TREATMENT.

Colin K. Russel, M.D.—Dr. Russel illustrated his paper by the exhibition of two patients who performed the exercises laid down, with suitable apparatus. The warning note throughout the paper was that in no way must the patient be allowed to tire himself. This should

be carefully watched by the physician, the patient being unable to observe fatigue in himself.

JOHN MCCRAE, M.D.—It seems to me that we have here an illustration of a most striking fact in favour of the theory of nervous exhaustion. One of the patients to-night had attained to comparative well-being through suitable treatment, but had the misfortune to lose two of his children in the Hochelaga School fire. The following morning it was found that he was completely ataxic, and it may be said that one hour of shock had worked in this man a result which years of the hardest labour could hardly have brought about. Dr. Russel's re-education from that point has been merely a recapitulation of the progress which the patient had made up to the time of the calamity. ,

H. A. LAFLEUR, M.D.—I would like to ask Dr. Russel if it would be considered safe to give a patient verbal instructions or a written *résumé* of the movements to be carried out, let us say at home. Some years ago I mentioned to a patient that the only thing that would help him would be this same re-educative treatment, and mentioned the work of Fraenkel, who had written out some exercises for this condition. The patient procured an English translation and carried out the treatment with a great deal of success, and from being extremely tabetic he could get along remarkably well. He kept the exercises up till he died three years later of cerebral hæmorrhage.

WESLEY MILLS, M.D.—This paper seems to me of unusual interest, because it shows how theory and practice or application may be closely connected. Dr. Russel has brought before us a theory of tabes which is eminently physiological, and one after hearing it expounded and thinking the subject over a little wonders that some such view as this was not urged before. That it has not been just shows how dull we are. Two or three things I should like to point out in this connexion: We have been slow to learn how movements, whether reflex or voluntary, are absolutely dependent upon the incoming afferent impulses. You may say that a tabetic subject is one that lacks the usual share of the incoming information; secondly, the executive is defective from lack of physiological knowledge; and the theory of training presented is based largely on the desirability of increasing stimulus through the parts that remain intact; for example, through the eye, which plays a very prominent part; that is, the eye is called upon to make up for the sensory regions that are shut off by the disease. This condition illustrates Hughlings Jackson's dictum that disease is a retrogression to a more primitive state. These tabetics again become children in a way, and the man struggles to perform a movement just as the child does to take its first steps. The question of exhaustion is of exceeding

interest, as is also that of fatigue. Two points of special interest are these: 1, That what is ordinarily termed fatigue is protective; 2, that exhaustion is the extreme limit of fatigue and is dangerous.

Dr. McCrae has shown what shock may do for a subject in a brief period of time. Shock may be referred to a sort of summation of stimuli so sudden that the result is the overthrow of the entire molecular mechanism to a certain extent. The whole subject is most suggestive, and I would conclude by calling attention again to the complexity of the process by which any coordinated muscular movement is brought about. Another point of practical interest is that it is very important to make these movements slowly. It seems that these movements to be coordinated must be made slowly, and the time occupied in this only gradually decreased if real advance is to be made.

Colin D. Russel, M.D.—With regard to the man who had such a complete relapse from shock, I may say that he was incapable of movement for practically a week, and was brought to the hospital, where, after about five weeks, he was very much improved. With regard to giving these patients a free hand in carrying out their own treatment, I would say that it is not at all desirable, on account of this very fact that they are incapable of a sense of fatigue, and they will go on doing these exercises as long as their interest keeps up, and may bring about a more complete exhaustion than that which we are trying to combat. Of course, with an intelligent patient, who is not able to come to the hospital or to get personal instruction regularly, something may be done, but it is far from advisable. With regard to the treatment of the paralyzed bladder in tabetics certainly this method is of most use from a prophylactic point of view. The patient is told to empty the bladder every three hours, and he gets into the habit of it and it soon becomes established. With retention it is a more difficult matter, and the only thing is the catheter, but, after this passes away, it usually goes on to incontinence. Syphilis is probably the cause of 90 per cent. of these tabetic cases. There has been, however, many cases in which there is certainly no syphilis.

I would like to emphasize the fact that this is a re-educative treatment; the patient is not altogether dependent on his eyes except at first. The condition seems to be an education of other neurones to take on the functions of those which are damaged. After the first course of treatment in this first patient, A. S., there was no Romberg's sign; the patient walked with his eyes at the level of the horizon perfectly. The great thing is to keep the patient interested on the movements so as to get the cortex to work: as Dr. Mills has pointed out, this is a great item in the treatment.

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